Datacommunications Tutorial

- **What are networking products?** Networking products consist of active (powered) communications devices such as Ethernet switches and routers, protocol converters and copper to fiber media converters.
- **How are networking products used?** These products are used to connect users and devices to a network. Other uses include extending the distance of a network and translating protocols between two different network types.
- **Where are networking products used?** Networking products are used in many voice, video and data communications applications including Ethernet networks, video surveillance, Internet access applications, and for monitoring and controlling devices in process and automation industries.

Datacommunications Terms

Asynchronous Transfer Mode (ATM): Very high speed network utilizing SONET optical transmission methods through the public telecommunications system.

Baseband Transmission: A transmission method where direct current signals are placed directly onto the transmission medium (cable). Ethernet is a baseband network type, hence, the "Base" in 10Base-T, etc.

Baud Rate: A measure of signal changes per second. Commonly used to rate the speed of a modem.

Bridge: A networking component that links two or more network segments. Bridges are used to split busy networks into separate, less congested segments.

Broadband Transmission: A transmission method where multiple channels are modulated onto separate carrier frequencies. The result is multiple communications channels that occupy specific frequency ranges.

Bus: Also called a "Daisy Chain". A network topology where each node is connected to one another in line. A major disadvantage is that when there is a break in the bus the entire network goes down.

Client Server: A network architecture where multiple user workstations (Clients) communicate with backend servers through a network. Clients are fully operating systems that are capable of processing data.

CODEC: An acronym for COder/DECoder. A device used for converting analog signals to digital signals. For example, telephone companies use codecs to convert binary signals transmitted on their digital networks to analog signals converted on their analog networks.

Converter: A device used to convert one transmission media to another (Ex. Fiber/Copper Media Converter). Converters are usually externally powered as they physically "repeat" or regenerate the signal.

CSMA: (See Basic Ethernet Theory - right).

Ethernet: (See What is Ethernet? - below).

Fiber Distributed Data Interface (FDDI): A 100Mbps fiber optic cabling standard developed by ANSI. FDDI utilizes a dual counter rotating ring topology for network redundancy.

Hub: A network device that receives a signal from one station and retransmits to all other connected stations.

Local Area Network (LAN): A network that remains within one facility (department, office, building, campus).

MODEM: An acronym for MOdulator/DEModulator. Modems are data communications devices that convert digital signals to analog signals for transmission over analog public telephone networks.

Network Interface Card (NIC): Network devices that are installed in computers so that they can be connected to a network. Ethernet NICs come in different speeds as well as with connections to different media types.

Node: A device or station connected to a network.

Peer to Peer: A network architecture where computers connect directly with other computers without the need for servers.

Redundancy: Utilizing multiple access methods so that if one goes down the systems still operate.

Repeater: A network device that regenerates the signal to increase a cabling run.

Router: A network device that interconnects networks. Routers provide traffic control and filtering functions, they are commonly used to connect a LAN to the Internet.

Server: A computing device that provides a service to users on a network (clients). An example is a file server that stores and maintains documents for retrieval.

Small Computer System Interface (SCSI): A peripheral interface that is used to connect devices to a computer.

Star: The most common network topology where each node is connected to a central point. Advantageous because if one part of the star is lost the network remains intact.

Switch: A switch is a multiport bridge that segregates different portions of a network for faster network access (See Basic Ethernet Theory - right).

Synchronous Optical Network (SONET): A Bellcore and ANSI standard that defines transmission of synchronous and time sensitive (ex: real time video) information. SONET provides a way for worldwide carriers to connect equipment.

Token Ring: A networking standard that utilizes a ring topology. Information is put onto the ring which is then passed (Token Passing) to the different stations. The amount of time that a station possesses the token is variable which gives some users priority on the network. Token Ring was standardized by IEEE under the 802.5 standard.

Transceiver: A device used to change one media type to another. Transceivers usually get their power from the NIC.

Wide Area Network (WAN): A network that spans a greater distance and needs the involvement of a public carrier.

What is Ethernet?

In the early 1980s, Digital Equipment Corporation, Intel and Xerox developed the Ethernet Local Area Networking format. This technology was soon accepted by the IEEE Committee, creating the 802.3 standard. This standard dictates the use of CSMA/CD (Carrier Sense Multiple Access with Collision Detection) as its accessing scheme. Networks use a variety of NICs (Network Interface Cards), hubs, transceivers, converters, repeaters & switches, as well as different types of transmission media for carrying signals.

- Accessing Scheme: CSMA/CD - Carrier sense multiple access with Collision Detection.
- Speed: 10Mbps/100Mbps/1000Mbps (1 GBps).
- Network Architecture: Coax Bus, UTP Star, Fiber Star

Connectors Commonly Used in Ethernet Environments

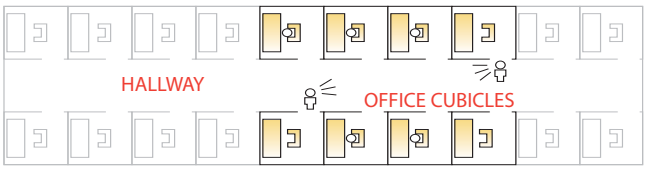
10BASE-T
100BASE-T
1000BASE-T
RJ45 JACK

100FX
1000BASE-X
Dual Fiber LC
PLUG

10BASE-FL
100BASE-FX
1000BASE-X
Dual Fiber SC
PLUG

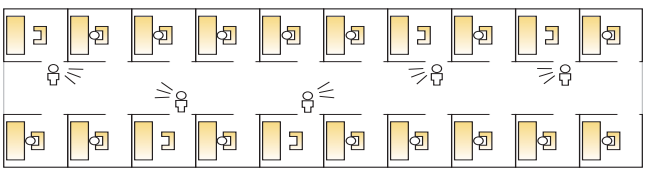
Basic Ethernet Theory

1 SIMPLE ETHERNET NETWORK:
- One collision domain



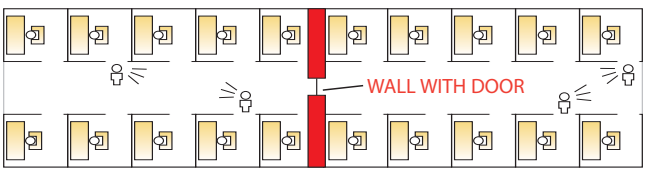
- Ethernet operational theory is quite easy to understand and a simple analogy is helpful to visualize the basics. Imagine a long hallway lined with offices. The hallway represents the physical network, the offices represent the attached stations. When an occupant wishes to speak to another occupant they would lean into the hallway, listen to make sure no one else is engaging in a conversation, then speak out addressing the desired recipient. All other occupants hear the conversation but ignore it knowing it is not directed to them.
- In essence, this analogy describes the medium access method standardized under IEEE802.3 known as *Carrier Sense Multiple Access with Collision Detection* (CSMA/CD). Carrier Sense is analogous to the ability to listen to all conversations (network traffic). Multiple Access is the ability for multiple users to access the medium while data is transmitted.

2 CONGESTED ETHERNET NETWORK:
- One collision domain



- Returning to our analogy, what if two or more occupants decide to speak at the same time? Naturally the overlapping voices would become garbled and indistinguishable. With Ethernet this is known as a collision. In the CSMA/CD method, CD stands for Collision Detection. If a collision is detected by a transmitting station(s) the rule states: stop transmitting immediately, transmit a jamming signal to inform all other stations to stop, then wait a random period (binary exponential backoff) and re-transmit.
- Unfortunately, as the quantity of stations increases so does the amount of collisions. This causes the average access time to increase proportionally. This is referred to in the industry as network congestion.

3 SWITCHED ETHERNET NETWORK:
- Two collision domains



- Fortunately, there are several ways to alleviate network congestion. One way is that the entire network can be upgraded to Fast Ethernet (100Mbps) which represents a 10 fold increase in transmission speed. This, however requires upgrading of all components and can be rather expensive. Another approach is to add an Ethernet Switch.
- In this analogy, the long hallway represents the network. Adding a two port switch is analogous to dividing the hallway into two shorter hallways separated by a door. This creates two segments (collision domains) where messages that are directed for occupants within the same area are not allowed to pass through the door. Only when a message is directed to another segment does the door open allowing the message to pass.
- An Ethernet switch reduces collisions by creating multiple collision domains. This, in most cases, is the most economical approach. A switch can be added to any network without the need to upgrade existing equipment.

What is the difference between standard/fast Ethernet and switched/shared equipment?

This chart explains the basic advantages and disadvantages to using 10 or 100Mbps equipment in a shared (hubs) or switched environment.

	10Mbps Standard Ethernet	100Mbps Fast Ethernet
Switched Topology (Switches)	• Medium speed • Segment bandwidth between power users and low volume users • Economical	• Highest speed • Segment high bandwidth links between power users • Most expensive
Shared Topology (Hubs)	• Lowest speed • Good for workgroups using e-mail, small file transfer and printing • Most economical	• Medium/high speed • Good for all around high bandwidth applications • More expensive

What our customers are saying. . .

"Thank you very much!! I just happened to pick up and read through your catalog that was here in our shop. You are selling and explaining products that reinforce exactly what we are learning in our CSNA (computer systems network administration) course. I am interested in learning more about your company and your products, also the technical tips in the Q and A are helpful. Thanks again." **- Jim G.**

LCR5000-17HS

LCR1000-AAF

LCR502-M

LCR152-AD

LCR231-13

LCR643-13

LC2152-1A

LC2643-14

METROBILITY optical systems

METROBILITY MADE in USA

UTP20058T

UTP20108

UTP20028T-2

Item #	Description	Maximum Segment Length	List Price
Metrobility Radiance Series Converter Chassis - 1, 2 and 17 Slot Options			
LCR5000-17HS	17 Slot Radiance 19" Rack Mountable Chassis		479.00
LCACPS-17HS	AC Power Supply for the LCR5000 Chassis		109.00
LCDCPS-17HS	DC Power Supply for the LCR5000 Chassis		469.00
LCR1000-AAF	2 Slot Chassis with 2 Front Facing AC Power Supplies		539.00
LCR1000-DDF	2 Slot Chassis with 2 Front Facing DC Power Supplies		539.00
LCR200-AC	1 Slot Chassis with Single AC Power Supply		249.00
LCR200-DC	1 Slot Chassis with Single DC Power Supply		259.00
Metrobility Radiance SNMP Management Module			
LCR502-M	SNMP Management Module for Radiance R5000 Chassis		489.00
Gigabit Ethernet (1Gpbs) "Twister" Modules for Radiance Series Chassis			
LCR152-1A	1000Base-TX, RJ45 to 1000Base-SX, Multimode SC	100m/220m	489.00
LCR152-1D	1000Base-TX, RJ45 to 1000Base-LX, Single mode SC	100m/10km	689.00
LCR152-1F	1000Base-TX, RJ45 to 1000Base-LX, Single mode SC	100m/25km	1519.00
LCR152-AD	1000Base-SX, Multimode SC to 1000Base-LX, Single mode SC	220m/10km	829.00
100Mbps Fast Ethernet "Twister" Modules for Radiance Series Chassis			
LCR231-13	100Base-TX, RJ45 to 100Base-FX, Multimode SC	100m/2km	489.00
LCR231-15	100Base-TX, RJ45 to 100Base-FX, Multimode ST	100m/2km	449.00
LCR231-14	100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/15km	689.00
LCR231-16	100Base-TX, RJ45 to 100Base-FX, Single mode ST	100m/15km	689.00
LCR231-17	100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/40km	829.00
LCR231-1J	100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/100km	2199.00
10/100Mbps Ethernet Intelligent AutoTwister Modules for Radiance Series Chassis			
LCR621-11	10/100Base-TX, RJ45 to 10/100Base-TX, RJ45	100m/100m	310.00
LCR643-13	10/100Base-TX, RJ45 to 100Base-FX, Multimode SC	100m/2km	209.00
LCR643-15	10/100Base-TX, RJ45 to 100Base-FX, Multimode ST	100m/2km	259.00
LCR643-1K	10/100Base-TX, RJ45 to 100Base-FX, Multimode LC	100m/2km	309.00
LCR643-14	10/100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/15km	365.00
LCR643-17	10/100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/40km	399.00
LCR643-1J	10/100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/100km	1379.00
LCR643-1M	10/100Base-TX, RJ45 to 100Base-FX, Single mode LC	100m/15km	419.00
Gigabit Ethernet (1Gbps) Twister Stand-alone Media Converters			
LC2152-1A	1000Base-TX, RJ45 to 1000Base-SX, Multimode SC	100m/220m	759.00
LC2152-1D	1000Base-TX, RJ45 to 1000Base-LX, Single mode SC	100m/10km	1179.00
LC2152-1F	1000Base-TX, RJ45 to 1000Base-LX, Single mode SC	100m/25km	1779.00
LC2152-AD	1000Base-SX, Multimode SC to 1000Base-LX, Single mode SC	220m/10km	1319.00
10/100Mbps Fast Ethernet Twister Stand-alone Media Converters			
LC2643-13	10/100Base-TX, RJ45 to 100Base-FX, Multimode SC	100m/2km	279.00
LC2643-15	10/100Base-TX, RJ45 to 100Base-FX, Multimode ST	100m/2km	279.00
LC2643-1K	10/100Base-TX, RJ45 to 100Base-FX, Multimode LC	100m/2km	309.00
LC2643-14	10/100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/15km	379.00
LC2643-17	10/100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/40km	419.00
LC2643-1J	10/100Base-TX, RJ45 to 100Base-FX, Single mode SC	100m/100km	1419.00
LC2643-1M	10/100Base-TX, RJ45 to 100Base-FX, Single mode LC	100m/15km	419.00

Unicom Repeater - Used to Double the 10Base-T UTP Operating Distance

This 10Base-T Repeater is the perfect solution to your long distance cabling headaches. No more cable distance restraints. This Repeater works in conjunction with a 10Base-T hub to double the 100 meter distance of the cable run to workstations. Features POWER, LINK, RCV and COL LEDs. No switches to set and is fully compatible with IEEE 802.3 10Base-T standards. Supplied with external 9V power AC adapter.

UTP20058T	10Base-T Repeater, 2 RJ45 Ports	89.00

Unicom 10Base-FL/10Base-T (Fiber/UTP) Converters - Dual ST and RJ45 Connections

These media converters conform with the IEEE 802.3 Ethernet fiber optic standard (10Base-FL). Dual Fiber ST connectors allow connection to 62.5/125 duplex multimode or single mode cabling and electro optic circuitry transforms the signal to a 10Base-T RJ45 port. Multimode fiber runs can extend up to 2km and single mode runs to 20km. Two position switch allows 10Base-T connection to a hub or a workstation and seven LEDs indicate network status at all times. Externally powered with 9V DC transformer included.

UTP20108	Miniature 10Base-FL/10Base-T Multimode Converter	169.00
UTP20108-SM	Miniature 10Base-FL/10Base-T Single mode Converter	400.00

Unicom 10Base-T/AUI Transceiver - RJ45 and DB15 Male Connections

Use this transceiver to connect your existing thick Ethernet interface card to a 10Base-T UTP network. Converts signals from standard Ethernet transceiver cable to a suitable format for transmission over Unshielded Twisted Pair wires to a hub of your choice. Our mini 10Base-T transceiver does not require any external power. Includes a set switch for enabling or disabling the SQE function for applications that require the SQE test. The POWER/TX, LINK/RCV and COLLISION/JABBER LED lights simplify troubleshooting and network maintenance.

UTP20028T	Miniature 10Base-T/AUI Transceiver	29.00

Unicom 10Base-T/AUI Transceiver Pigtail - RJ45 and DB15 Male Connections

10Base-T installations are now made simpler and easier with Trans-One. This new design combines transceiver, AUI cable and 15 foot patch cable all in one. It provides a single unit connection from the user's Ethernet Adapter Card to a 10Base-T Hub. Suitable for all user applications and saves dollars over separate transceiver and attachment cables. Trans-One is equipped with LEDs for troubleshooting and network maintenance.

UTP20028T-2	Double Pigtail 10Base-T/AUI Transceiver	30.00

Unicom 10Base-2/10Base-T Media Converter - RJ45 and BNC Connections

This 10Base-2/T converter is designed to connect your existing Thin Ethernet interface card or Thin Ethernet Network to a 10Base-T UTP network. The unit simply converts signals from Thin Ethernet to a suitable form for transmission over Unshielded Twisted Pair (UTP). It has a three position terminator switch (open, 25 Ohm, 50 Ohm) for varying applications. The POWER, LINK, TPPLR, TPRCV, TPCOL, CXCOL, CXRCV LED lights simplify troubleshooting and network maintenance. Supplied with 9V DC power adapter.

UTP20038T	Miniature 10Base-2/T Converter	69.00

Item #	Description	Maximum Segment Length	List Price

RoHS Compliant Planet Economy Fast Ethernet and Gigabit Copper to Fiber Media Converters

Planet's line of Fast Ethernet and Gigabit Ethernet Media Converters offer users a cost effective option to convert from Fiber to Copper in a network. The Planet converters make it easy to extend network segments up to 2km over multimode fiber optic cable and up to 15km over single mode fiber optic cable. Includes a 5VDC power supply.

NCPT3-2133	Planet 10/100Mbps RJ45 to 100Mbps Multimode ST	100m/2km	85.00
NCPT3-2135	Planet 10/100Mbps RJ45 to 100Mbps Multimode MTRJ	100m/2km	129.00
NCPT3-2143	Planet 10/100Mbps RJ45 to 100Mbps Multimode SC	100m/2km	85.00
NCPT3-2184	Planet 10/100Mbps RJ45 to 100Mbps Single mode SC	100m/15km	149.00
NCPT4-214D	Planet 1000Mbps RJ45 to 1000Mbps Multimode SC	100m/550m	129.00
NCPT4-217E	Planet 1000Mbps RJ45 to 1000Mbps Multimode LC	100m/550m	179.00
NCPT4-21010	Planet 1000Mbps RJ45 to 1000Mbps Mini-GBIC, Multimode LC	100m/10km	69.00
MOD-MGBIC-SX	Planet 1000Base-SX Mini-GBIC Module	550m	69.00
MOD-MGBIC-LX	Planet 1000Base-LX Mini-GBIC Module	10km	149.00

RoHS Compliant Planet 15 Slot Media Converter Chassis

The PTMC1500 media converter chassis allows for connectivity of up to 15 Planet Ethernet/ Fast Ethernet and Gigabit Ethernet copper to fiber converters in one 19" rack mount chassis. Dual fans with accompanying LED indicators provide at a glance troubleshooting for system cooling. The Chassis features power isolation for each of the 15 converters ensuring each bay is electrically isolated from each other. This power isolation feature ensures uninterrupted connectivity and seamless plug and play module installation.

PTMC1500	Planet 15 Slot Media Converter Chassis	239.00

Unicom Ethernet Velocity™ Media Converters - For Stand-alone or Chassis Based Use

Unicom's FEP series media converters offer great flexibility as they can be used in standalone, desktop mode or they can be mounted in a chassis (sold separately). All units offer shielded steel enclosures and run off 5 VDC power supplies which are included. Multiple LEDs indicate status for easy trouble shooting.

FEP5300TFC	Unicom Velocity 10/100TX RJ45 to 100Base-FX Multimode SC	100m/2km	109.00
FEP5300TFT	Unicom Velocity 10/100TX RJ45 to 100Base-FX Multimode ST	100m/2km	109.00
FEP5400TFC	Unicom Velocity 10/100TX RJ45 to 100Base-FX Single mode SC	100m/15km	285.00
GEP-5300TF-C	Unicom Velocity 10/100/1000 to Multimode SC	100m/500m	289.00
GEP-5400TF-C	Unicom Velocity 10/100/1000 to Single mode SC	100m/10km	529.00

Unicom 10 Slot Velocity™ Media Converter Chassis

Unicom's Velocity™ Media-Chassis/10 accommodates up to 10 Gigabit and Fast Ethernet Velocity Series media converter modules in a single unit. The power supply system is integrated and provides power protection into each bay's supply. The chassis also offers extra protection by isolating each media converter bay from the power bus. The chassis includes two 19" rack-mounting brackets, one fan and one 110/220V power supply. This chassis can only be used with the Velocity Series media converters.

FEP593110	Unicom Velocity 10 Slot Media Converter Chassis	269.00

Transition Networks Point System Chassis Solutions

Transition Networks offers one of the widest selections of media conversion chassis ranging from a dual slot all the way to a 19 slot solution. Additional optional accessories include redundant AC and DC power supplies, SNMP management modules, and fan modules. With this wide range of options, any configuration can be satisfied.

CPSMC0200-226	2 Slot Point System Chassis	269.00
CPSMC0800-100	8 Slot Point System Chassis (Internal AC Pwr Supply)	449.00
CPSMC1300-100	13 Slot Point System Chassis (Includes 1 Pwr Supply)	489.00
CPSMC1800-200	18 Slot Point System Chassis (Includes 1 Pwr Supply)	599.00
CPSMC1900-100	19 Slot Point System Chassis (Includes 1 Pwr Supply)	525.00
CPSMM-120	Single Slot Master Management Module	369.00
CPSMM-200	Dual Slot Master Management Module	489.00
CPSMP-120	Redundant 120/240V AC Power Supply (13 Slot Point System Chassis)	299.00
CPSMP-200	Redundant 120/240V AC Power Supply (18-19 Slot Point System Chassis)	379.00
CPSFM-200	Fan Module (18-19 Slot Point System Chassis)	149.00
CPSFP-200	Blank Face Plate	3.45

Transition Networks Point System Media Converter Modules

Transition Networks offers a wide array of Point System media conversion options. Styles include 10BaseT, 10BaseFL, 10/100TX, 100BaseFX and Gigabit media converters. Each media converter is equipped with system status LEDs for at-a-glance management. By adding a management module to the Point System chassis SNMP management of each module is achieved.

CETTF1011-105	Point System Media Converter 10Base-T to 10Base-FL ST MM	100m/2km	159.00
CETTF1013-105	Point System Media Converter 10Base-T to 10Base-FL SC MM	100m/2km	169.00
CETTF1012-105	Point System Media Converter 10Base-T to 10Base-FL ST SM	100m/20km	429.00
CETTF1014-105	Point System Media Converter 10Base-T to 10Base-FL SC SM	100m/20km	549.00
CFETF1011-105	Point System Media Converter 100Base-TX to 100Base-FX ST MM	100m/2km	269.00
CFETF1013-105	Point System Media Converter 100Base-TX to 100Base-FX SC MM	100m/2km	269.00
CFETF1014-105	Point System Media Converter 100Base-TX to 100Base-FX SC SM	100m/20km	549.00
CBFTF1011-100	Point System Media Converter 10/100Base-TX to 100Base-FX ST MM	100m/2km	389.00
CBFTF1013-100	Point System Media Converter 10/100Base-TX to 100Base-FX SC MM	100m/2km	389.00
CBFTF1014-100	Point System Media Converter 10/100Base-TX to 100Base-FX SC SM	100m/20km	599.00
CGETF1013-110	Point System Media Converter 1000Base-TX to 1000Base-SX SC MM	100m/2km	579.00
CGETF1014-110	Point System Media Converter 1000Base-TX to 1000Base-SX SC SM	100m/10km	969.00
CFMFF1313-220	Point System Media Converter 1000Base-SX to 1000Base-SX SC MM	100m/2km	1010.00
CFMFF1314-220	Point System Media Converter 1000Base-SX to 1000Base-LX SC SM	100m/10km	1130.00
CGFEB1013-100	Point System Media Converter 10/100/1000 to 1000Base-SX SC MM	100m/2km	779.00
CGFEB1014-100	Point System Media Converter 10/100/1000 to 1000Base-LX SC SM	100m/10km	1119.00

NCPT3-2133

NCPT4-214D

PTMC1500

FEP5300TFC

FEP593110

CPSMC0800-100

CPSMC1900-100

CPSMM-200

CPSMP-200

CBFTF1011-100

CFMFF1314-220

SWTC-SW502

SWTC-SW802

SWTC-PT801SC

SWTC-PT801ST

SWTC-PT801S15

SWTC-PT1601

SWTC-PT2401

SWTC-PT2620

MOD-MGBIC-SX

MOD-MGBIC-LX

SWTC-PTG503

SWTC-PTG803

SWTC-PT4800

Item #	Description	List Price

Planet 5 and 8 Port 10/100 Ethernet Switches

Planet Economy Ethernet switches offer a cost effective way to set up a small network at home or in the office. The 5 and 8 Port switches are compact and easy to install. These switches feature 10/100Mb auto-negotiation, 1K MAC address table, and store and forward switching architecture ensuring optimum performance. Includes a 12VDC power supply.

SWTC-SW502	Planet 5 Port 10/100Mbps Fast Ethernet Switch	16.00
SWTC-SW802	Planet 8 Port 10/100Mbps Fast Ethernet Switch	20.00

RoHS Compliant Planet 8 Port 10/100Mbps 1 Port 100FX Fast Ethernet Switches

The Planet SWTC-PT801X Series Ethernet switches are a versatile and economical way to connect 8 10/100 RJ45 Copper ports to a fiber backbone or network via the built in fiber port. These switches are also rack mountable using optional 10-inch and 19-inch rack mount kits, PT-RKE-10A and PT-RKE-10B (sold separately). These versatile switches feature automatic speed and duplex mode sensing, filtering/forwarding rates of 148,800pps for 100Mbps, 14,880pps for 10Mbps, IEEE 802.3x full duplex flow control, half-duplex back-pressure and MDI/MDIX auto-detection.

SWTC-PT801SC	Planet 8 Port 10/100Mbps - 1 Port 100FX MM SC Ethernet Switch	115.00
SWTC-PT801ST	Planet 8 Port 10/100Mbps - 1 Port 100FX MM ST Ethernet Switch	115.00
SWTC-PT801S15	Planet 8 Port 10/100Mbps - 1 Port 100FX SM SC Ethernet Switch	129.00
PT-RKE-10A	Planet 10" Rack Mount Ears	5.00
PT-RKE-10B	Planet 19" Rack Mount Ears	7.50

RoHS Compliant Planet 16 Port 10/100Mbps Fast Ethernet Switch

The SWTC-PT1601 features 16 10/100Base TX ports that support auto-negotiation, half and full duplex operation as well as built in MDI/ MDIX auto-detection for easy, plug and play connections. The high performance store and forward filtering and switching function ensures corrupt packets are not propagated through the network.

SWTC-PT1601	Planet 16 Port 10/100Mbps Fast Ethernet Switch	59.00

RoHS Compliant Planet 24 Port 10/100Mbps Fast Ethernet Switch

The SWTC-PT2401 is the perfect high density switching solution for today's high performance Ethernet networks. The switch features 24 10/100Base-TX ports that support half and full duplex operation as well as auto-negotiation. High performance throughput (filtering/forwarding rate: 14,880 packets per second at 10Mbps, 148,800pps at 100Mbps) and dynamic shared memory buffer, enables the SWTC-PT2401 to boost bandwidth, eliminate unnecessary traffic and relieve network congestion.

SWTC-PT2401	Planet 24 Port 10/100Mbps Fast Ethernet Switch	79.00

RoHS Compliant Planet 24 Port 10/100Mbps - 2 Port 10/100/1000 Gigabit Ethernet Switch

The Planet SWTC-PT2620 26 port Fast Ethernet and Gigabit Ethernet switch provides 24 Fast Ethernet Switch ports and two Gigabit Ethernet 10/100/1000 switch ports. Each Fast Ethernet port supports 10/100Mbps and the two Gigabit Ethernet ports support 10/100/1000Mbps as well as Half/Full Duplex mode. With its 8.8Gbps non-blocking switch fabric, 8K MAC Address table, and 802.3x full-duplex flow control support, the SWTC-PT2620 offers wire-speed packet transfer performance without the risk of packet loss. MDI/MDI-X auto detection is provided for direct wire connection to any Ethernet device including switches, hubs, or workstations without requiring a crossover cable. By viewing the front panel LED indicators, users can easily monitor network connection status.

SWTC-PT2620	Planet 24 Port 10/100Mbps Plus 2 Gig Port Ethernet Switch	139.00

RoHS Compliant Planet 1000Base-SX/LX Mini-GBIC Modules

The MOD-MGBIC-SX and MOD-MGBIC-LX provide flexible, high speed Gigabit access to the SWTC-PT2400 triple speed Gigabit Ethernet switch. These small form factor GBICs support either multimode or single mode fiber cabling with a maximum distance of 10km (MOD-MGBIC-LX). These two Mini-GBIC interfaces are ideal for adding an uplink to a server or network backbone.

MOD-MGBIC-SX	Planet 1000Base-SX Mini-GBIC Module, 550m	69.00
MOD-MGBIC-LX	Planet 1000Base-LX Mini-GBIC Module, 10km	149.00

RoHS Compliant Planet 10/100/1000Mbps Gigabit Ethernet Switch

The Planet five and eight port Gigabit Ethernet switches deliver cost effective, versatile high speed IP data connectivity to the desktop or data closet. These switches feature a compact footprint as well as a non-blocking switching architecture that guarantees wire-speed packet transfer. The RJ45 copper interfaces support 10/100/1000Mbps auto-negotiation for optimal speed detection through RJ45 Category 6, 5 or 5e cables. MDI/MDI-X auto detection is provided for direct wire connection to any Ethernet device without requiring crossover cables. The switches also feature 802.3x, full duplex flow control.

SWTC-PTG503	Planet 5 Port 10/100/1000Mbps Gigabit Ethernet Switch	89.00
SWTC-PTG803	Planet 8 Port 10/100/1000Mbps Gigabit Ethernet Switch	99.00

RoHS Compliant Planet 48 Port 10/100 Fast Ethernet Switch

The Planet 48 port 10/100Base-TX Fast Ethernet Switch provides an economical and high performance Ethernet switching solution. With increasing bandwidth requirements for local area networks, Planet's SWTC-PT4800 Fast Ethernet Switch is the ideal option to alleviate bottlenecks in client / server and peer-to-peer environments in a cost-effective way. This Switch provides a combination of 48 Fast Ethernet switching ports providing users with high-speed network connections. With its Auto-Negotiation capability, all the RJ45/STP ports can be configured to speeds of 10/20Mbps or 100/200Mbps automatically. In addition, this switch is equipped with the MDI / MDIX auto-detection for easily plug and play connections, regardless of cabling types. Both straight through and crossover cables are supported. The high-performance throughput at filtering/forwarding rate is up to 14,880 packets per second in 10Mbps, and 148,800pps in 100Mbps. Along with its dynamic shared memory buffer, the SWTC-PT4800 can boost bandwidth, eliminate unnecessary traffic and relieve congestion on your critical server path.

SWTC-PT4800	Planet 48 Port 10/100 Fast Ethernet Switch	225.00

Item #	Description	List Price

NETGEAR READYNAS Network Storage Solutions

Network Attached Storage (NAS) is dedicated hard disk-based storage technology designed to be connected directly to a computer network, providing centralized data access to multiple network clients. NETGEAR's ReadyNAS storage solutions are a bullet-proof way to virtually insure that your data will never be lost again to hardware failure.

RND4250	NETGEAR READYNAS NV+ 1TB Desktop Network Storage 2X500GB	1329.00
RND4425	NETGEAR READYNAS NV+ 1TB Desktop Network Storage 4X250GB	1329.00
RND4450	NETGEAR READYNAS NV+ 2TB Desktop Network Storage 2X500GB	1899.00

NETGEAR READYNAS Rackmount Network Storage Solutions

Unlike other complicated or proprietary storage solutions, the ReadyNAS 1100 is a new class of NAS designed to meet the requirements of increasingly energy efficient computing environments. By carefully tailoring a Linux-based OS with a custom microprocessor, the 1100 removes traditional complexity, efficiency, and interoperability barriers. The ReadyNAS 1100 packs 2 gigabit interfaces, hardware RAID and 4 Hot Swap SATA disks all in a remarkable 12 inch deep 1U chassis! Quickly add network storage for any workgroup or department with the ReadyNAS 1100.

RNR4450	NETGEAR READYNAS 1100 2TB Dual Gig Rackmount NAS	2569.00
RNR4475	NETGEAR READYNAS 1100 2TB Dual Gig Rackmount NAS	3729.00

NETGEAR 5, 8 and 16 Port 10/100Mbps Ethernet Switches

NETGEAR Fast Ethernet Switches provide your LAN with high-speed, 10/100Mbps auto-sensing connectivity. Just plug in your Ethernet cables and connect a power cord - it's self-configuring, so you're ready to go. The SWTC-FS108P features 4 POE ports.

SWTC-FS105NA	NETGEAR 10/100Mbps 5 Port Switch	43.75
SWTC-FS108NA	NETGEAR 10/100Mbps 8 Port Switch	52.00
SWTC-FS108P	NETGEAR 10/100Mbps 8 Port Switch with 4 POE ports	149.00

NETGEAR's 5 and 8 Port Gigabit Switches

NETGEAR's Gigabit Switches offer users high-speed network connections in a compact cost effective switch. The GS series switches feature auto negotiation between 10, 100 and 1000Mbps connections allowing users to migrate to higher speeds over time. With Auto uplink and full duplex operation, these NETGEAR Gigabit switches make connections simple and fast. Includes an external power supply.

SWTC-GS105NA	NETGEAR 10/100/1000Mbps 5 Port RJ45 Switch	99.00
SWTC-GS108NA	NETGEAR 10/100/1000Mbps 8 Port RJ45 Switch	89.00

NETGEAR ProSafe Fast Ethernet Switches

NETGEAR's ProSafe series Fast Ethernet switch feature VLAN support, QoS and 802.1p CoS. These flexible and easy to manage switches provide POE capabilities (SWTC-FS728TP)and smart stacking support (SWTC-FS728TS).

SWTC-FS728TP	NETGEAR 10/100 24 Port POE Switch with 2 10/100/1000 and 2 Combo SFP ports	479.00
SWTC-FS728TS	NETGEAR 10/100 24 Port Switch with 4 10/100/1000 Ports	279.00
MOD-AGM731F	NETGEAR SFP 1000Base SX LC Fiber Module	349.00

NETGEAR ProSafe VPN Firewall Solutions

NETGEAR's ProSafe VPN Firewall solutions offer SPI firewall, IPSec support and support for multiple VPN tunnels ensuring data privacy. Additionally, these VPN firewalls provide 8 10/100 T XLABN ports for easy network access.

RTR-FVS338	NETGEAR ProSafe VPN Firewall (50 Tunnels)	229.00
RTR-FVX538	NETGEAR ProSafe VPN Firewall (200 Tunnels) with Dual WAN Ports	459.00

NETGEAR ProSafe Gigabit Ethernet Switches with POE

NETGEAR's ProSafe Gigabit Ethernet Switches with POE offer uses 1000Mbps on each poet as well as POE support. These robust switches can be managed via an easy to use Web based GUI and feature IGMP Snooping, 801.1X and ACL support.

SWTC-GS724TP	NETGEAR 10/100/1000 24 Port POE Switch with 2 10/100/1000 and 2 Combo SFP ports	739.00
SWTC-GS748TP	NETGEAR 10/100/1000 48 Port POE Switch with 2 10/100/1000 and 2 Combo SFP ports	1499.00

NETGEAR 1000Base SX GBIC

NETGEAR's MOD-AGM721F is a 1000Mbps duplex SC fiber GBIC that can be used in any standard GBIC port. This GBIC supports 62.5/125 and 50/125 Multimode fiber.

MOD-AGM721F	NETGEAR 1000Base SX GBIC Duplex SC Connectors	329.00

RND4250

RNR4450

SWTC-FS105NA

SWTC-FS108NA

SWTC-FS108P

SWTC-GS105NA

SWTC-GS108NA

SWTC-FS728TP

SWTC-FS728TS

MOD-AGM731F

RTR-FVS338

RTR-FVX538

SWTC-GS724TP

SWTC-GS748TP

MOD-AGM721F

NETGEAR
Connect with Innovation™

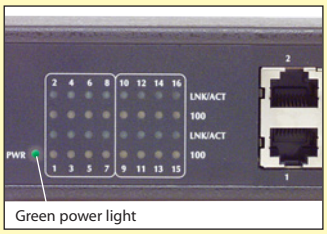
NETGEAR ProSafe LIFETIME WARRANTY

Tip *How auto-negotiation works*

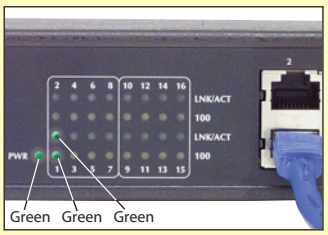
IEEE 802.3 NWay Auto-negotiation is a data communications protocol used with Ethernet switches, routers and media converters. The NWay protocol was developed so Ethernet devices, which support multiple transmission speeds such as a 10/100, can operate more efficiently. This protocol automatically selects the highest possible common transmission speed between two Ethernet switches, routers or media converters and automatically sets that speed on the port.

Benefits of using NWay Auto negotiation (also referred to as auto-sensing or auto-negotiation) include:

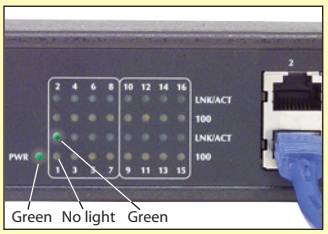
- Network connections that automatically choose the highest performance levels without the a for costly and time consuming manual port configurations.
- Guaranteed network uptime and resiliency. If the NWay protocol detects that a device that is being attached is not of the same technology (i.e. Token Ring to Ethernet connection) the port will not allow a connection or data transfer saving the network from potentially catastrophic downtime.
- NWay Auto negotiation is backward compatible with 10Mbps only Ethernet devices.



Prior to connecting a network device, the link, activity and speed LEDs are not lighted (inactive).



Upon connecting a network device to port 1 of the switch, NWay Auto-Negotiation automatically detects that the connected device is operating at 100Mbps and sets switch port 1 to that speed. The green 100 LED indicates this status.

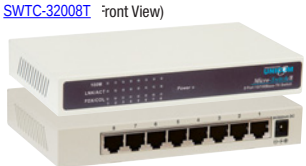


When a network device is connected that is running at 10Mbps, the 100 LED indicator will not light up indicating NWay Auto Negotiation has set the local switch port to 10Mbps.

SWTC-32005T (Front View)

SWTC-32005T (Rear View)

SWTC-32008T (Front View)



SWTC-32008T (Rear View)

FEP31024T

GEP31124T-1

GEP61200F-C GEP61200T

SWTC-EZXS55W

SWTC-EF3116

SWTC-EF4124

SWTC-SR2016

Item #	Description	List Price

Unicom's Unmanaged 10/100Mbps Ethernet Switches - 5 or 8 RJ45 Ports

The Mini-Switch 5 and 8 are super compact 10/100Base-TX switches. These parts represent the newest generation in Ethernet switching technology by supporting both 10 and 100Mbps speeds, half or full-duplex transmission modes and Auto MDI/MDIX Crossover checking. Units include a 9 VDC power supply.

SWTC-32005T	Unicom 5 Port 10/100Mbps Unmanaged Ethernet Switch	25.00
SWTC-32008T	Unicom 8 Port 10/100Mbps Unmanaged Ethernet Switch	30.00

Unicom's Unmanaged 10/100Mbps Ethernet Switches - 16 or 24 Ports

Unicom's Dyna-Switch Series 16 and 24 Port Unmanaged Ethernet Switches are an affordable and efficient way to upgrade a network. With sixteen or twenty-four 10/100Mbps ports with MDI/MDIX, these switches will fit neatly on a desktop or can be rack mounted with the included mounting brackets. With Full Duplex operation, the switches can increase the bandwidth of the 10Mbps Ethernet port and the 100Mbps Fast Ethernet port to 20Mbps and 200Mbps, respectively. This switch supports IEEE 802.3 full-duplex flow control and half-duplex backpressure congestion control.

FEP31016T	Unicom 16 Port 10/100Mbps Unmanaged Ethernet Switch	99.00
FEP31024T	Unicom 24 Port 10/100Mbps Unmanaged Ethernet Switch	139.00

Unicom's Smart 24 Port 10/100Mbps Ethernet Switch with Dual 100/1000 Uplink Module

Unicom's GEP31124T-1 is a 24-port 10/100Base-TX switch with a Dual Port 100/1000 Module Slot and VLAN capability. The GEP31124T-1 represents the newest generation in Fast Ethernet switching technology by supporting both 10Mbps or 100Mbps speed and half or full duplex transmission modes on the same port. Furthermore, the switch supports store-and-forward mechanisms and true non-blocking architecture for the most demanding multimedia imaging applications. A backbone dual port uplink is available for easy Gigabit or Fast Ethernet network expansion.

GEP31124T-1	24 Port 10/100 TX Smart Switch with Dual Gig Uplink	179.00
GEP61200F-C	2 Port 100Base-FX (SC Multimode) Module, 2km	139.00
GEP61200F-C-SM	2 Port 100Base-FX (SC Single mode) Module, 15km	439.00
GEP61200T	2 Port 100/1000Base-T Module,100m	89.00
GEP61200L-C	2 Port 1000Base-LX (SC Single mode) Module, 10km	699.00
GEP61200S-C	2 Port 1000Base-SX (SC Multimode) Module, 500m	349.00

Linksys EtherFast® 10/100Mbps 5, 8 or 16 Port Workgroup Switches

Linksys EtherFast 10/100Mbps Workgroup Switches allow quick and easy migration to Fast Ethernet's 100Mbps speed. Every Switch includes a complete suite of advanced data error detection and correction features for surefire communication every time. Auto partitioning, data-collision control, signal regeneration and incoming frame retiming ensure that none of the data is lost, even during heavy network traffic. Available in 5, 8, or 16 port configurations.

SWTC-EZXS55W	EtherFast 10/100Mbps 5 Port Auto-Sensing Switch	32.95
SWTC-EZXS88W	EtherFast 10/100Mbps 8 Port Auto-Sensing Switch	54.00
SWTC-EZXS16W	EtherFast 10/100Mbps 16 Port Auto-Sensing Switch	85.00

Linksys EtherFast 10/100Mbps Ethernet Switches with Optional Fiber Module Slot

Linksys EtherFast 3100 Series 10/100Mbps Ethernet Switches will boost your network performance with full duplex data transfer and dedicated bandwidth. This series features non-blocking, wire-speed switching that forwards packets quickly. Address Learning and Aging and Data Flow Control help prevent packet collisions and data transfer errors. The EtherFast 3100 series is rack mountable and includes an Expansion Slot that accepts an optional Fiber Module to link to other switches in full duplex mode up to 2000 meters (6560 feet) away.

SWTC-EF3116	Linksys EtherFast 16-Port 10/100Mbps Ethernet Switch with Optional Module Slot	139.00
SWTC-EF3124	Linksys EtherFast 24-Port 10/100Mbps Ethernet Switch with Optional Module Slot	159.00
MOD-EF31SC	Linksys 100Mbps Multimode SC Fiber Uplink Module	129.00
MOD-EF31ST	Linksys 100Mbps Multimode ST Fiber Uplink Module	110.00

Linksys EtherFast 10/100Mbps Ethernet Switches

Linksys EtherFast 4100 Series 10/100Mbps Ethernet Switches will boost your network performance with full duplex data transfer and dedicated bandwidth. This series features non-blocking, wire-speed switching that forwards packets quickly. Address Learning and Aging and Data Flow Control help prevent packet collisions and data transfer errors.

SWTC-EF4116	Linksys EtherFast 16-Port 10/100Mbps Ethernet Switch	89.00
SWTC-EF4124	Linksys EtherFast 24-Port 10/100Mbps Ethernet Switch	139.00

Linksys 5, 8 and 16 Port 10/100/1000 Gigabit Ethernet Switches

The Linksys 10/100/1000 Gigabit Switches provide non-blocking, wire speed switching for your 10, 100 and 1000 Megabit network clients. By utilizing these switches you can upgrade your high-speed workstations to full Gigabit speeds as necessary, while continuing to service other clients at their current speeds. These switches are a perfect solution for graphics, multimedia and other applications that have to move large files across the network quickly. All ports support automatic MDI/MDI-X crossover detection, auto-negotiation for speed as well half- or full-duplex mode.

SWTC-SD2005	Linksys 5 Port 10/100/1000 Desktop Gigabit Ethernet Switch	75.00
SWTC-SD2008	Linksys 8 Port 10/100/1000 Desktop Gigabit Ethernet Switch	169.00
SWTC-SR2016	Linksys 16 Port 10/100/1000 Rackmount Gigabit Ethernet Switch	315.00

Item #	Description	List Price

Planet Cable / DSL Router with 4 Port Switch

The RTR-PT401D offers high levels of security, functionality and flexibility all at a very competitive price. The RTR-PT401D features four integrated 10/100Mbps Ethernet RJ45 interfaces providing support for PC's, printers and other networked peripherals. A single WAN interface supports connection to a Cable or DSL modem. By utilizing sophisticated connection agents including (PPPoE/DHCP/fixed IP/PPTP) the RTR-PT401D is optimized for different ISP environments around the world.

RTR-PT401D	Planet Cable/DSL Router with 4 10/100Mbps Ports	49.00

RTR-PT401D

Planet VPN Router with 3 Port 10/100 Fast Ethernet Switch

The Planet RTR-PT311S is a cost-effective, highly integrated VPN solution combining high-speed, industry-leading routing technology with a comprehensive suite of advanced, VPN Pass-through, client-to-VPN gateway, LAN-to-LAN VPN solutions. With the built-in connection wizard (DHCP, Fixed IP, PPPoE, PPTP, SingTel RAS, Telstra Big Pond) VPN support (IPSec standards, including IKE and certificates) and Microsoft VPN support, it supports most connection types and meets demanding security requirements. For overall network security, the VRT-311S integrates user access control and policy based controls plus SPI firewall protection, offering high efficiency and extensive protection for your network. Additional features include a 3-port auto-sensing, auto-MDI/MDI-X 10/100Mbps switch and a standard 10/100Base-TX WAN port providing Internet access for both Servers and LAN side workstations.

RTR-PT311S	Planet VPN Router with 3 Port 10/100Mbps Fast Ethernet Switch	89.00

RTR-PT311S

Planet Multi-Homing Security Gateway

Planet's Multi-Homing Security Gateway integrates with cutting-edge technology including Load Balancing, VPN and Firewall functions for central sites to establish an office network and connect with branch offices as well as remote dial-up and teleworkers. Built-in multiple WAN interfaces prevent your Internet connection from failure, and also reduce the risks of potential shutdown. Moreover, it allows you to apply load-balancing by distributing the traffic through two WAN connections. The policy-based firewall, content filtering function and VPN connectivity with 3DES and AES encryption provide optimal network security. The bandwidth management function is also supported to offer network administrators an easy yet powerful means to allocate network resources based on business priorities, and to shape and control bandwidth usage.

MH-PT1000	Planet Multi-Homing Security Gateway	289.00

MH-PT1000

Cisco SOHO 91 Cable/DSL Broadband Router

Cisco SOHO 91 Ethernet WAN router allows users in a small office to share a secure broadband connection with an integrated stateful-inspection firewall. Corporate teleworkers can also take advantage of Cisco SOHO 91 router for VPN connections to the corporate network. These routers support 3DES encrypted connections using Cisco IOS Software or users can initiate VPN tunnels from PC-based VPN clients on the LAN. The Cisco SOHO 91 router has an Ethernet WAN port for use with an external DSL or cable modem.

RTR-SOHO91	Cisco Broadband Router	299.00

RTR-SOHO91

Linksys Etherfast® Cable / DSL Router with 4 Port Switch

The Linksys EtherFast® Cable/DSL Router with 4-Port Switch is the perfect option to connect up to 253 users to a high-speed Broadband Internet connection or to an Ethernet backbone. The built-in NAT technology acts as a firewall protecting the internal network from hackers. The router can also be configured to block internal users' access to the Internet. This cutting-edge combination of router and switch technology eliminates the need to buy an additional hub or switch.

RTR-BEFSR41	Linksys Cable / DSL Router with 4 Port Switch	59.99

RTR-BEFSR41

Linksys EtherFast® Cable / DSL Router with 8 Port Switch

The Linksys EtherFast® Cable/DSL Router with 8-Port Switch is the perfect solution to connect up to 253 users to a high-speed Broadband Internet connection or to an Ethernet backbone. Built-in NAT technology acts as a firewall protecting the internal network from hackers. Configurable as a DHCP server for an existing network, the EtherFast® Cable/DSL Router with 8-Port Switch acts as the only externally recognized Internet device on the local area network (LAN). This cutting-edge combination of router and switch technology eliminates the need to buy an additional hub or switch and serves as a completely dedicated, full duplex backbone.

RTR-BEFSR81	Linksys Etherfast Cable / DSL Router with 8 Port Switch	99.00

RTR-BEFSR81

NETGEAR ProSafe™ Cable / DSL Router with 4 Port Switch and Print Server

The NETGEAR ProSafe Cable/DSL Router with 4-port Switch gives users complete control over network contact with the Internet. The RTR-FR114P features Denial of Service (DoS) protection and Intrusion Detection using Stateful Packet Inspection (SPI), URL access and content filtering, logging, reporting and real-time alerts. VPN pass-through maximizes network security with access control and encryption. The Smart Wizard and Install Assistant get the network up and running in minutes and a complete anti-virus software bundle is included at no extra cost to shield your network with additional protection. A built-in print server supports multiple print jobs simultaneously.

RTR-FR114P	NETGEAR's ProSafe Cable / DSL Router with 4 Port Switch and Print Server	99.00

RTR-FR114P

NETGEAR Cable / DSL Router with 4 Port 10/100Mbps Switch

NETGEAR's RTR-RP614 Router lets you securely extend your broadband Internet connection to all of your computers. Each person on your network can instantly enjoy high-speed web access. The RTR-RP614 provides True Firewall protection: Stateful Packet Inspection (SPI), which eliminates potential threats to your network and Network Address Translation (NAT), which conceals your networked devices from hackers. Filtering allows parents to limit URL access and monitor Internet activities. Setup couldn't be easier using the included Smart Wizard utility. The RTR-RP614 is compatible with all modems and virtually all Internet service providers.

RTR-RP614	NETGEAR's Cable / DSL Router with 4 Port 10/100Mbps Switch	59.00

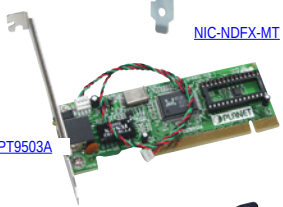
RTR-RP614

FEP4208-C

FEP4208-T

NIC-NDFX-SC

NIC-NDFX-MT


NIC-PT9503A

NIC-PT3504-FC

NIC-PT9607M

NIC-FA311

NIC-FA511

NIC-3C905CTXM

NIC-LNE100TX

Item #	Description	List Price

Unicom's 100Mbps PCI Fiber Network Cards

Unicom's 100Base-FX PCI Adapter card allows direct connection to a Multimode fiber optic port at distances up to 2,000 meters by using dual ST, SC, MT-RJ or VF45 connectors. With the full-duplex feature, bandwidth is effectively doubled from 100Mbps to 200Mbps. In addition, the Plug and Play feature makes installation easy.

FEP4208-C	Unicom 100Base-FX PCI NIC with Duplex Multimode SC	99.00
FEP4208-T	Unicom 100Base-FX PCI NIC with Duplex Multimode ST	99.00
FEP4208-M	Unicom 100Base-FX PCI NIC with Duplex Multimode MT-RJ	139.00
FEP4208-V	Unicom 100Base-FX PCI NIC with Duplex Multimode VF45	139.00

Transition Networks Redundant Fast Ethernet 100BASE-FX Adapter Cards

Maintain network stability and reliability with a redundant NIC. Dual-port NICs provide redundancy and if port failure is detected, the auto-failover feature automatically transfers network communications to the secondary port without disrupting the network. Whether it's a desktop solution or network server, using a redundant NIC with auto-failover guarantees consistent reliable network performance.

NIC-NDFX-ST	Transition Networks NIC Redundant 100FX ST Multimode	459.00
NIC-NDFX-SC	Transition Networks NIC Redundant 100FX SC Multimode	459.00
NIC-NDFX-MT	Transition Networks NIC Redundant 100FX MTRJ Multimode	459.00

RoHS Compliant Planet 10/100Base-TX PCI Adapter with Wake On LAN

The NIC-PT9503A 10/100 Ethernet adapter is designed for use with desktop PCs with 32-bit PCI expansion slots. This adapter supports both 10Base-T and 100Base-TX networks right out of the box. The adapters 10/100 RJ45 port automatically detects a network's maximum speed and adjusts itself accordingly. Additionally, the adapter features Wake-On-LAN (WOL) event management.

NIC-PT9503A	Planet 10/100Base-TX PCI Adapter RJ45	12.95

RoHS Compliant Planet 10/100Mbps Cardbus PCMCIA Ethernet Adapter

The NIC-PT3504-FC can be used in any laptop computers 32 Bit PCMCIA slot. This adapter features a single RJ45 port for connecting to Ethernet network devices. Additionally, this adapter complies with PCMCIA Release 2 Type II and JEIDA v4.x standards. Support for auto negotiation as well as half and full duplex operation is included. The NIC-PT3504-FC is the perfect plug and play solution for your PCMCIA adapter needs.

NIC-PT3504-FC	Planet 10/100Mbps CardBus PCMCIA Ethernet Adapter	19.95

RoHS Compliant Planet 10/100/1000Mbps 64-bit PCI 2.2 Gigabit Ethernet Adapters

The NIC-PT9607 is a 64-bit 10/100/1000Base-T PCI 2.2 Gigabit Ethernet adapter designed to address high-performance system application requirements. This adapter comes with one fixed RJ45 port. The NIC-PT9607M provides a single mini-GBIC interface. Either a 1000Base-SX or 1000Base-LX mini-GBIC module (sold separately) can be placed into the NIC-PT9607M depending on the application. Please refer to mini-GBIC part numbers MOD-MGBIC-SX and MOD-MGBIC-LX. The NIC-PT9607/PT9607M support both 32-bit and 64-bit interfaces, as well as multiple operating systems. Compatible with Windows 98/NT/ME/2000/XP.

NIC-PT9607	Planet 64-bit PCI 2.2 Gigabit Ethernet Adapter	56.00
NIC-PT9607M	Planet 64-bit PCI 2.2 Gigabit Ethernet Adapter, Mini-GBIC	75.00

RoHS Compliant NETGEAR's FA311 10/100Mbps Ethernet PCI Network Interface Card

The NETGEAR Ethernet Network Card connects users to other networked computers, printers, zip drives, routers, network storage and the Internet. Plug it in and achieve high-speed 10/100Mbps transfer rates for data. NETGEAR's single chip design improves the reliability and performance of the network card. Be prepared for the future with both 3.3v PCI and low-profile PCI capability - no upgrades required. All major operating systems are supported: Microsoft Windows, Microsoft NT, Novell NetWare, RedHat Linux and SCO OpenServer Unix.

NIC-FA311	NETGEAR 10/100Mbps PCI NIC	19.25

NETGEAR's FA511 10/100Mbps Cardbus 32-Bit NIC

The NETGEAR 10/100Mbps CardBus Mobile Ethernet Adapter provides laptops with 32-bit, Plug-and-Play, bus-mastering network connectivity. The FA511 auto-detects network speed without manual port reconfiguration Since the CardBus operates at a modest 3.3V, it conserves the laptop's power consumption and extends battery life. The FA511 also supports full-duplex capabilities for a maximum throughput of 200Mbps.

NIC-FA511	NETGEAR 10/100Mbps Cardbus 32-Bit Card	39.00

3Com® 10/100Mbps PCI Network Interface Cards

The 3Com 10/100Mbps managed Network Interface Cards (NIC's) cost-effectively migrate enterprise networks to Fast Ethernet. High-performance features including advanced bus technology, TCP/IP offloads and traffic control accelerate network throughput and reduce host CPU utilization. The intelligent NIC-3C905CTXM card comes with centrally controlled, remote desktop management features and the interactive 3Com Connection Assistant simplifying management and troubleshooting with automated Web support.

NIC-3C905CTXM	3Com 10/100Mbps Managed NIC	45.00
NIC-3C905CTXM-25PK	3Com 10/100Mbps Managed NIC, Pkg/25	789.00

Linksys EtherFast® 10/100Mbps LAN PCI Card

The Linksys EtherFast 10/100Mbps LAN Card is a high performance network adapter for desktop computers with 32-bit PCI expansion slots. The card's 10/100Mbps combo RJ45 port automatically detects a network's maximum speed and adjusts itself accordingly. This PC card also features Wake-On-LAN (WOL) event management. If the installed PCI motherboard has built-in WOL support, you'll be able to remotely turn on that computer.

NIC-LNE100TX	Linksys EtherFast 10/100Mbps LAN PCI Card	21.00

Wireless Networking Terms

802.11a: An IEEE standard for wireless Ethernet networking that operates in the 5 GHz radio band (ISM frequency band) and uses the IP protocol. Maximum transmission speed is 54Mbps and approximate wireless range is 25-75 feet indoors.

802.11b: An IEEE standard for wireless Ethernet networking that operates in the 2.4 GHz radio band (ISM frequency band) and uses the IP protocol. Maximum transmission speed is 11Mbps and approximate wireless range is 100-200 feet indoors.

802/11g: An IEEE standard for wireless Ethernet networking that operates in the 2.4 GHz radio band (ISM frequency band) and uses the IP protocol. Maximum transmission speed is 54Mbps and approximate wireless range is 100-200 feet indoors.

Access Point: A wireless Access Point is used to connect PC's with wireless adapter cards to a wired Ethernet network. Access points can support several or all of the three most popular IEEE WLAN standards including 802.11a, 802.11b and 802.11g. Sometimes people may refer to an Access Point as a Wireless Hub.

Adapter: A wireless adapter or NIC (Network Interface Card) that is used to connect to a laptop or PC to a wireless LAN (Local Area Network).

Ad-hoc: An Ad-hoc wireless network is made up of a group of PC's and/or laptops connected as an independent wireless LAN.

Encryption: Encryption is used to hide or mask the data being sent through wireless transmissions. There are several popular and widely used encryption methods used today including WEP (Wired Equivalent Privacy, and WPA (Wi-Fi Protected Access).

Hot Spot: A wireless Hot Spot is a public area where wireless laptops can connect to WLAN and receive Internet access. Recently many coffee shops and airports have added this capability for their customer's convenience.

Infrastructure: A Wireless Infrastructure is comprised of both wired and wireless LAN's. Typically this type of configuration is found in SOHS and Enterprise environments where there are many user groups or divisions requiring access to shared resources.

ISM Band: The ISM (Industrial, Scientific and Medical) band, which is controlled by the FCC in the US, generally requires licensing for various spectrum use. To accommodate wireless LAN's, the FCC has set aside bandwidth for unlicensed use including the 2.4Ghz spectrum where many WLAN products operate.

Roaming: The ability to use a wireless device and be able to move from one access point's range to another without losing the connection.

Router: A wireless router is a protocol dependent device that is used to connect sub networks or different independent WLAN's together. Routers provide security as they can be configured to only allow certain users access to different services such as the Internet and file servers when connecting a WLAN to the Internet a router is required.

SOHO (Small Office/Home Office): Is a widely used acronym, which defines applications or products that are used in homes or in small offices.

SSID: The SSID is the unique name shared among all devices on the same wireless network

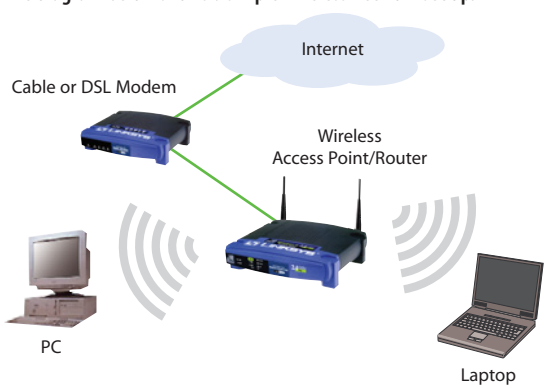
WIFI: Wi Fi stands for Wireless Fidelity and is used to define any of the IEEE 802.11 wireless standards. The term Wi-Fi was created by the Wireless Ethernet Compatibility Alliance (WECA). Products certified as Wi-Fi compliant are interoperable with each other even if they are made by different manufacturers.

What is a Wireless Network?

A wireless network is very similar to the wired network in that all the same pieces are still required, a wireless NIC, Access Point (similar to a wired network Ethernet Switch) and a wireless router. The only thing that's missing is the cables.

First you will need to determine if your desktop or Laptop PC already has a wireless NIC built in. Again, check your users guide to confirm this. Once your wireless NIC is installed you will need to configure the SSID (service set identifier) on each of the PC's to use the same name. Also, you need to make sure all the wireless NICs are configured to be on the same channel and set levels of encryption if desired. Your wireless access point or router should come with detailed explanation of how to configure the SSID and security features such as encryption and access lists. Many of today's wireless routers come with the access point functionality built right in.

The diagram below shows a simple wireless network set up.

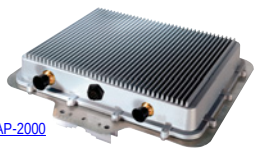


	802.11a	802.11b	802.11g
Speed	Up to 54 Mbps	Up to 11 Mbps	Up to 54 Mbps
Frequency	5 Ghz	2.4 Ghz	2.4 Ghz
Indoor Range	25-75 feet	100-200 feet	100-200 feet
Compatibility	Incompatible with 801.11b and 802.11g	Compatible with 802.11g	Compatible with 802.11b

The diagram below shows a typical business wireless LAN.

WLAN-WRT410

WLAN-WAP4033



MAP-2000

WLAN-WLU356R

WLAN-NIC3560

WLAN-NIC8310

POE-PT151

POE-PT151S-12V

POE-PT1200

Item #	Description	List Price

Planet 802.11g Wireless Broadband Router

The WLAN-WRT410 is a broadband router integrated with an 802.11g Access Point. The IEEE 802.11g standard uses the 2.4GHz frequency band, the same as IEEE 802.11b; but it provides almost five times the throughput rate of 802.11b. With the latest integrated Super G technology, maximum data rates of 108Mbps are realized. The WLAN-WRT410 is also backward compatible and interoperable with IEEE 802.11b compliant wireless devices. This router supports 64/128bit WEP encryption as well as WPA (Wi-Fi Protected Access) and 802.1x authentication. The router features a built-in 4-port 10/100 Ethernet switch as well as virtual server, DMZ and natural firewall functions.

WLAN-WRT410	Planet 802.11g Wireless Broadband Router	95.00

Planet 802.11g Wireless Ethernet 54Mb Access Point

The WLAN-WAP4033 is a cost effective IEEE 802.11g wireless access point. IEEE 802.11g technology uses the 2.4GHz frequency band, the same as IEEE 802.11b, but provides almost five times the data throughput rate than 802.11b. You can use this access point to establish a wireless LAN connection that enables multiple PCs to access the wireless LAN easily. The WLAN-WAP4033 supports WPA, WPA2 64/128-bit WEP (Wired Equivalent Privacy) Encryption and MAC address filtering capabilities providing comprehensive wireless network security preventing unauthorized wireless stations from accessing your wireless network. This product provides a user-friendly interface and allows configuration from a web browser.

WLAN-WAP4033	Planet 802.11g Wireless Ethernet 54Mb Access Point	69.00

Planet 802.11a/b/g Outdoor MESH Access Points

The MAP-2000 and MAP-2000R outdoor access points support IEEE 802.11a/b/g standards and provide a highly scalable mesh network. All mesh nodes can operate at 2.4GHz for long range and better penetration, or at 5GHz to minimize frequency interference. Both models are encased in an IP-66 protection housing and are designed for outdoor installation. The detachable antennas design allows users to use multiple antenna styles for various deployment requirements. Enhanced with the advanced MDOLSR (Modified Dynamic Optimal Link State Routing) protocol, data is always transferred on the optimal path. The MAP-2000 offers a WAN interface for Internet connection and the MAP-2000R provides a LAN interface for dedicate Relay usage. Security features include AES backhaul link, WPA2 level client access, SSL for web management, and MAC filtering. The MAP-2000 and MAP-2000R also include MAP Management System software. This software is built around the SNMP protocol and can be installed in a PC. This software can locate and monitor all Mesh APs in the same network.

MAP-2000	Planet 802.11 a/b/g Outdoor MESH Gateway Access Point	995.00
MAP-2000R	Planet 802.11 a/b/g Outdoor MESH Relay Access Point	995.00

Planet 802.11a/b/g Indoor MESH Access Point

The MAP-2100 indoor access point supports IEEE 802.11a/b/g standards and provides a highly scalable mesh network. All mesh nodes can operate at 2.4GHz for long range and better penetration, or at 5GHz to minimize frequency interference. The detachable antennas design allows users to choose multiple antenna styles for various deployment requirements. Enhanced with the advanced MDOLSR (Modified Dynamic Optimal Link State Routing) protocol, data is always transferred on the optimal path. The MAP-2100 offers a WAN interface for the Internet connection and a LAN interface for Ethernet connectivity. Security features include AES backhaul link, WPA2 level client access, SSL for web management, and MAC filteMAP-2100 MAP-2100 also includes MAP Management System software. This software is built around the SNMP protocol and can be installed in a PC. This software can locate and monitor all Mesh APs in the same network.

MAP-2100	Planet 802.11 a/b/g Indoor MESH Access Point	429.00

Planet 802.11g Wireless LAN USB Adapter

The WLAN-WLU356R 802.11g wireless USB adapter provides simple, reliable, high-speed wireless connections for both desktop and laptop users. By combining two, state-of-the-art technologies-USB 2.0 and 802.11g the WLAN-WLU356R delivers data at speeds up to 54Mbps, five times the speed of existing 802.11b devices. Simply plug this wireless USB LAN adapter into your computer's USB port and gain access to any 802.11b/g wireless network. Support of 64, and 128 -bit WEP encryption plus WPA and WPA2 high-level encryption keeps your wireless communications safe from unauthorized access and ensures secure data transfers.

WLAN-WLU356R	Planet 802.11g Wireless LAN USB Adapter	24.99

Planet Wireless G 54Mbps PC Cardbus Adapter

The Planet IEEE 802.11g wireless adapter can operate in either Ad-Hoc mode (Point to Point/Point to Multipoint without an Access Point) or in Infrastructure mode (Point to Point/Point to Multipoint with an Access Point). With almost five times the data rate of traditional 802.11b products, these adapters are suitable for high bandwidth multimedia applications. The WLAN-NIC3560 operates in the 2.4GHz unlicensed ISM band and is compliant with both the 802.11b and 802.11g standards. This dual-standard support allows for greater flexibility of deployment and use. Support for both 64/128-bit WEP (Wired Equivalent Privacy) and Wi-Fi Protected Access (WPA) for securing wireless network connections is included. Windows 98SE/ME/2000/XP/Server 2003 are supported.

WLAN-NIC3560	Planet Wireless G 54Mbps PCMCIA Adapter	35.00

Planet Wireless G 54Mbps PCI Adapter

The WLAN-NIC8310 is an IEEE 802.11g wireless PCI card that supports data rates up to 54Mbps. This PCI adapter can operate in either Ad-Hoc mode (Point to Point/Point to Multipoint without an Access Point) or Infrastructure mode (Point to Point/Point to Multipoint with an Access Point). The WLAN-NIC8310 features a detachable dipole antenna that can be replaced with optional external antenna to obtain better signal quality and greater connection distances. Security features include support for both 64/128-bit WEP (Wired Equivalent Privacy) and Wi-Fi Protected Access (WPA). Windows 98SE/ME/2000/XP/Server 2003 are supported.

WLAN-NIC8310	Planet Wireless G 54Mbps PCI Adapter	39.00

Planet 151 Series 802.3af Power Over Ethernet Injector and Splitters

The POE-PT151 is an IEEE 802.3af Power over Ethernet Injector that provides DC 48V over Ethernet Cat5 cables. The POE-PT151 IEEE 802.3af Power over Ethernet Injector inserts DC Voltage onto a Cat.5 cable, allowing the cable between the Injector (POE-PT151) and Splitter (POE-PT151S-5V/9V/12V) to transfer data and power simultaneously. The maximum distance between the Injector and Splitter is 100 meters. Each Splitter ships with two power cables with 2.0mm and 2.5mm female power connectors.

POE-PT151	Planet 802.3af Power over Ethernet Injector	39.00
POE-PT151S-5V	Planet 802.3af Power over Ethernet Splitter, 5V 2A	29.00
POE-PT151S-9V	Planet 802.3af Power over Ethernet Splitter, 9V 1.3A	29.00
POE-PT151S-12V	Planet 802.3af Power over Ethernet Splitter, 12V	29.00

Planet 12 and 24 Port 802.3af Power Over Ethernet Injector Hubs

The Planet POE-PT1200 and POE-PT2400 are 12-port and 24-port IEEE802.3af Power over Ethernet injector hubs that comply with IEEE802.3, IEEE802.3u and IEEE802.3af standards. Equipped with 12 or 24 10/100BASE-TX Fast Ethernet ports, the products support full 48VDC power for any remote IEEE802.3af powered device such as Wireless LAN Access Point's, IP phone's, and LAN Cameras. These hubs feature Web and Console management interfaces to allow administrators easy management access. The hubs can auto detect the power status on each port and show messages on both the Web and Console management interface.

POE-PT1200	Planet 12 Port 802.3af Power over Ethernet Injector Hub	259.00
POE-PT2400	Planet 24 Port 802.3af Power over Ethernet Injector Hub	399.00

Item #	Description	List Price

NETGEAR® Cable/DSL 802.11g Wireless Router 54 Mbps

NETGEAR's Cable/DSL 802.11g wireless router lets you experience the blazing-fast network wireless speeds of 54 Mbps up to five times faster than the popular 802.11b wireless network. These higher speeds make it a snap to download large files, videoconference, and stream high-quality digital movies. This wireless router also works with 802.11b wireless products so you can use it with your existing 802.11b devices and your new 54 Mbps, 802.11g devices. Auto-sensing chooses the fastest connections possible on your 10/100 Mbps wide area network and four local area network ports.

WLAN-WGR614	NETGEAR Cable/DSL 802.11g Wireless Router 54 Mbps	53.00

NETGEAR® 802.11g 54 Mbps Wireless Access Point

NETGEAR's WG602 802.11g Wireless Access Point connects to IEEE 802.11b wireless networks as well as supporting users who utilize the new high speed IEEE 802.11g standard at 54 Mbps. With its high-speed data transmissions of up to 54 Mbps, you will accomplish a lot of work in a short amount of time. Network users can share a broadband Internet connection, access e-mail, download large files, videoconference, and distribute and play digital images, videos, and MP3 files. With up to 128-bit WEP encryption, you can rest assured that your wireless network communications are private.

WLAN-WG602	NETGEAR 802.11g 54 Mbps Wireless Access Point	79.00

NETGEAR® Prosafe Dual-Band Wireless Access Point

The NETGEAR WAG302 Access Point supports both 5 GHz and 2.4 GHz 54 Mbps radio transmission with up to 108 Mbps in both 802.11g and 802.11a in turbo mode to support up to 128 simultaneous wireless clients and client types within the same coverage area. Built-in security and manageability features make it ideal for any organization or institution facing increasing mobile computing needs.

WLAN-WAG302	NETGEAR Prosafe Dual-Band Wireless Access Point	399.00

NETGEAR® Wireless Cable/DSL Router 4-Port Switch + USB Print Server

NETGEAR's ProSafe WLAN-FWG114P Cable/DSL Wireless Router with 4-Port Switch and built in USB Print Server offers the easiest way to share and extend a high-speed DSL/Cable modem Internet connection. This high-performance IEEE 802.11g standards-based router connects PCs equipped with wireless PC cards, while an integrated 4-port switch connects devices that require Ethernet wiring. The built-in print server lets users share a network printer without leaving their PC on. Network security is maximized with integrated WPA, NAT, and Intrusion Detection using Stateful Packet Inspection (SPI), URL access and content filtering, logging, reporting, and real-time alerts.

WLAN-FWG114P	NETGEAR Wireless Cable/DSL Router 4-Port Switch + USB Print Server	149.00

NETGEAR® RangeMax NEXT Router

RangeMax NEXT extends the possibilities of your wireless home network by providing wireless speeds of up to 270Mbps. A RangeMax NEXT wireless network creates and maintains stable connections and enough bandwidth to surf the Internet, download MP3s, make Internet phone calls, share files, play network games, and stream high-definition videos, simultaneously at any distance or location in the home or small office. Because RangeMax Next is compatible with all legacy b and g wireless products, you are sure to be connected.

WLAN-WNR834B	NETGEAR RangeMax NEXT Router	125.00

NETGEAR® 54 Mbps Wireless PCI Adapter

At 54 Mbps, this wireless 2.4 GHz 802.11b/g PCI card is much faster than existing 11 Mbps wireless networks and will greatly enhance the delivery of media-rich content to your desktop PC. The WG311 easily handles bandwidth hungry applications such as digital video and MP3 files. The WG311 gives you continuous access to your home wireless router or office network, saves the time and expense of installing Ethernet cabling when you want to set up or expand a network. Furthermore, it allows network users to wirelessly share a broadband Internet connection for access to corporate resources, the Internet, and e-mail.

WLAN-WG311	NETGEAR 54 Mbps Wireless PCI Adapter	53.00

NETGEAR® 108 Mbps Wireless PCI Adapter

NETGEAR's 108 Mbps Wireless PCI Adapter provides wireless access to your desktop when installed in an open PC slot. Optimized for use with the 108 Mbps Wireless Router, it can boost your network performance with up to twice the speed and as much as four times the coverage of standard 802.11g connections.

WLAN-WG311T	NETGEAR 108 Mbps Wireless PCI Adapter	95.00

NETGEAR® RangeMax Wireless PCI Adapter

NETGEAR's RangeMax extends your network coverage up to 10 times that of standard 802.11g, thanks to an advanced Smart MIMO (Multi-In, Multi-Out) technology that incorporates seven "intelligent" internal antennas in a wireless router. The antennas continuously scan your home, automatically sensing physical obstacles and electronic interference, then dynamically adjust the wireless signal to compensate and maintain a clear connection.

WLAN-WPN311	NETGEAR RangeMax Wireless PCI Adapter	89.00

NETGEAR® RangeMax Next Wireless-N PCI Adapter

RangeMax Next extends the possibilities of your wireless home network by providing wireless speeds of up to 270Mbps. This next generation wireless standard utilizes advanced MIMO (Multi-In, Multi-Out) technology, which delivers incredible speed and range, and for the first time provides wireless interoperability at the highest speeds. The WLAN-WN311T provides Wireless-N access to PCI enabled computers and servers.

WLAN-WN311T	NETGEAR RangeMax Next Wireless-N PCI Adapter	96.00

NETGEAR® RangeMax Wireless USB 2.0 Adapter

NETGEAR's RangeMax extends your network coverage up to 10 times that of standard 802.11g, thanks to an advanced Smart MIMO (Multi-In, Multi-Out) technology that incorporates seven "intelligent" internal antennas in a wireless router. The antennas continuously scan your home, automatically sensing physical obstacles and electronic interference, then dynamically adjust the wireless signal to compensate and maintain a clear connection. So if you move your laptop, or someone starts talking on a cordless phone, RangeMax detects the change and adapts with over 100 possible antenna configurations.

WLAN-WPN111	NETGEAR RangeMax Wireless USB 2.0 Adapter	86.00

NETGEAR® 108 Mbps USB 2.0 to 802.11g Wireless Adapter

NETGEAR's 108 Mbps Wireless USB 2.0 Adapter provides wireless access to your desktop or notebook PC through the computer's USB port. Optimized for use with the 108 Mbps Wireless Router, it can boost your network performance with up to twice the speed and as much as four times the coverage of standard 802.11g connections.

WLAN-WG111T	NETGEAR 108 Mbps USB 2.0 to 802.11g Wireless Adapter	67.00

WLAN-WGR614

WLAN-WG602

WLAN-WAG302

WLAN-FWG114P

WLAN-WNR834B

WLAN-WG311

WLAN-WPN311

WLAN-WG311T

WLAN-WN311T

WLAN-WPN111

WLAN-WG111T

RS20800T1T1SDAE

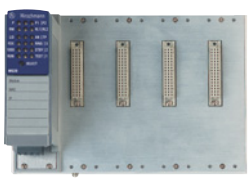
RS21600T1T1SDAE

RS20800M4M4SDAE

RS20800M2M2SDAE

M-SFP-LX/LC

MS20-0800SAAE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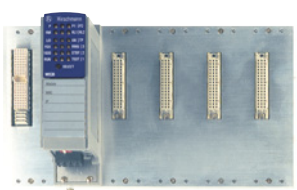

MS20-1602SAAE

MM2-4TX1

MM2-4FXM3

MM2-2FXM2

MM2-2FXS2

MM2-2FLM4

MM2-2FXM3/2TX1

Item #	Description	List Price

Hirschmann OpenRail RS20/RS30 Managed 24V DC Industrial Ethernet Switches

Hirschmann's new OpenRail line of managed industrial Ethernet switches takes advantage of evolving technologies by providing greater functionality and lower cost. These managed switches are an update to the RS2/Rail switches. The Rail family (RS20 & RS30) includes more port options with 4, 8, 16 or 24 Fast Ethernet ports and the option of two Gigabit Ethernet ports (RS30). These switches are available with a choice of "enhanced" or "professional" firmware. Users can decide which functionality their application requires and select the appropriate firmware option without having to pay for features they do not need. Features like IGMP Snooping and HIPER Ring are available in all OpenRail switches. These robust switches also feature a USB port for backing up and restoring the configuration using an Auto-Configuration Adapter or USB drive.

RS20800T1T1SDAE	OpenRail Switch 8 10/100TX	1269.00
RS21600T1T1SDAE	OpenRail Switch 16 10/100TX	2125.00
RS20800M4M4SDAE	OpenRail Switch 6 10/100TX 2 Multimode ST	1525.00
RS20800M2M2SDAE	OpenRail Switch 6 10/100TX 2 Multimode SC	1525.00
RS20800S2S2SDAE	OpenRail Switch 6 10/100TX 2 Single mode SC	2269.00
RS30802O6O6SDAE	OpenRail Switch 8 10/100TX 2 Gig SFP	1699.00
RS32402T1T1SDAE	OpenRail Switch 24 10/100TX 2 10/100/1000TX	3169.00
M-SFP-SX/LC	SFP 1000BASE-SX LC 550m	289.00
M-SFP-LX/LC	SFP 1000BASE-LX LC 20km	579.00
M-SFP-LH/LC	SFP 1000BASE-LX LC 70km	2469.00
M-SFP-LH+/LC	SFP 1000BASE-LX LC 120km	3999.00

Hirschmann (MICE) Managed Modular 8 Port Ethernet / Fast Ethernet Rail Switch

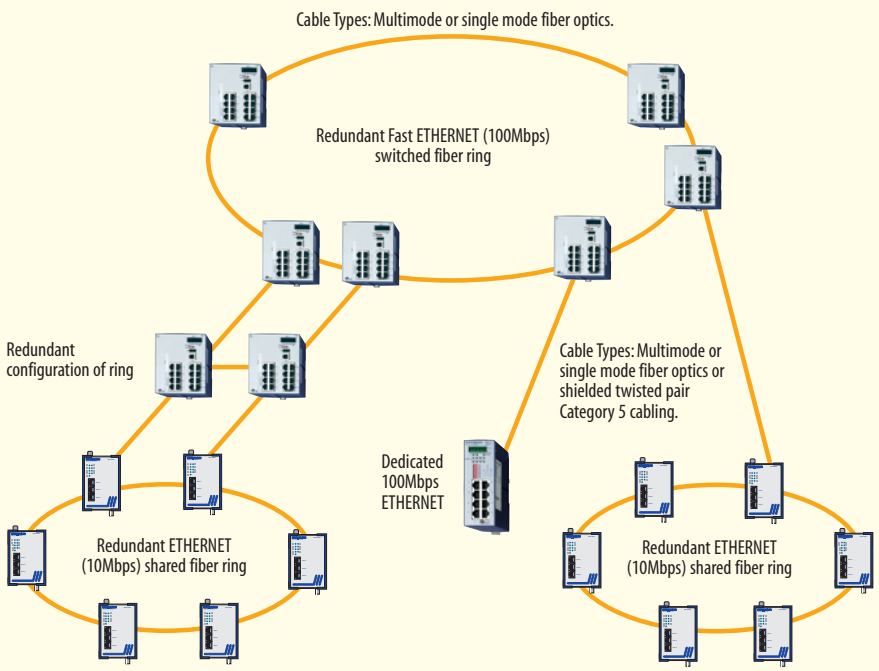
Hirschmann Modular Industrial Communication Equipment (MICE) Ethernet/Fast Ethernet switches offer a unique combination of network management tools, redundancy features for high availability and modular media plug-ins for versatility. The compact switches are DIN Rail mountable, with redundant 24-volt power supplies and are compatible with 10BASE-T, 10BASE-FL, 100BASE-TX and 100BASE-FX. The switches will accommodate twisted pair, single mode or multimode fiber optic connections. MICE switches are made up of an integrated backplane and a modular dock that accepts the various media modules. The switches support SNMP management, web-based management, port mirroring, port security, remote monitoring (RMON), bootstrap protocol (BootP), Dynamic Host Configuration Protocol (DHCP) and Hirschmann's unique HIPER Ring. Hirschmann's HIPER Ring provides high availability through self-healing ring redundancy. The switches' rugged construction meets all standards for industrial Ethernet, making them suitable for applications where EMI interference, shock, vibration and temperature might otherwise cause concern.

MS20-0800SAAE	MICE Backplane 2 Slots	1020.00
MS20-1600SAAE	MICE Backplane 4 Slots	1900.00
MS30-1602SAAE	MICE Backplane 4 10/100 Slots 1 Gig Slot	2399.00
MB-2T	2 Slot Expansion Backplane for MS3124-4	169.00
MM2-4TX1	4 10/100Mbps RJ45 Ports	379.00
MM2-4FXM3	4 100Mbps Multimode MT-RJ Ports	1239.00
MM2-2FXM2	2 100Mbps Multimode SC Ports	689.00
MM2-2FXS2	2 100Mbps Single mode SC Ports	1499.00
MM2-2FLM4	2 10Mbps Multimode ST Ports	825.00
MM2-2FXM3/2TX1	2 10/100Mbps RJ45s plus 2 100Mbps Multimode MT-RJ Ports	799.00

Ethernet Communications on the Plant Floor

The movement to utilize Ethernet connectivity standards on the plant floor is heavily underway. Suppliers of remote I/O devices are quickly changing from traditional RS485 ports to 10 or 100Mbps Ethernet ports. PLCs (Programmable Logic Controllers) are now equipped with Ethernet ports as standard equipment.

Industrial Railmounted Ethernet equipment is fairly new to the networking community. These products are designed and built to a higher standard acceptable to manufacturing environments. The German made Hirschmann line is rapidly setting the pace for Ethernet in the industrial workplace. L-com is proud to be one of the few National Distributors chosen in the United States to support the Hirschmann line.


Cable Types: Multimode or single mode fiber optics.
Redundant Fast ETHERNET (100Mbps) switched fiber ring
Redundant configuration of ring
Cable Types: Multimode or single mode fiber optics or shielded twisted pair Category 5 cabling.
Dedicated 100Mbps ETHERNET
Redundant ETHERNET (10Mbps) shared fiber ring
Redundant ETHERNET (10Mbps) shared fiber ring

Item #	Description	List Price

Hirschmann 100Mbps 24 VDC 8 Port DIN Rail Auto-negotiating Switch (8 Shielded RJ45 Ports)

The RS2-TX Rail switch provides a fast, easy and cost-effective solution for configuring small Fast Ethernet networks. Features eight auto-negotiating twisted pair ports with shielded RJ45 connectors. The 24V operating voltage is supplied via a plug-in terminal block which can be configured for redundancy. Integrated LEDs display device and network status for fast on-site troubleshooting.

RS2-TX	DIN Rail 10/100Base-TX Switch	439.00

Hirschmann Eagle Series Industrial Firewall System

The Hirschmann Eagle series security firewalls provide secure access to and from your Ethernet network. These IP Routers feature one trusted port and one untrusted port to control user access to critical network services such as servers and PC's. Security features include NAT, PPoE, PPTP, APR limiter, MAC filtering and Kaspersky anti virus engine. These routers are powered by an external 24V DC power supply (sold separately) and are IP20 rated for harsh environments.

EAGLE-1TX-1TX	Eagle Firewall System 1 RJ45 Trusted, 1 RJ45 Untrusted	1246.00
EAGLE-1TX-1FX	Eagle Firewall System 1 SC MM Trusted, 1 RJ45 Untrusted	1470.00

Hirschmann Industrial Compact Ethernet Rail Switches

Hirschmann Industrial Compact Switches provide the industrial customer with a cost effective way to add Ethernet connectivity on the factory floor. These switches auto-negotiate between equipment with 10Mbps or 100Mbps connections. The Hirschmann Industrial line features rugged metal enclosures and DIN Rail mounting. The switches also feature redundant 24VDC inputs and an open relay contact to facilitate connection to PLCs, allowing reaction to malfunction or process control alarms. The FX switches feature the extended range of fiber optic cabling via an integrated multimode fiber optic port. The fiber port can be used to create a fiber optic backbone to a central control room.

RS2-5TX	Hirschmann Industrial Switch 10/100Mbps 5-Port RJ45	369.00
RS2-5TX/FX	Hirschmann Industrial Switch 10/100Mbps 4 RJ45s + 1 Multimode MT-RJ	469.00

Hirschmann Unmanaged SPIDER 10/100 Ethernet Rail Switches

The Hirschmann SPIDER unmanaged Industrial Ethernet Rail Switches are the perfect small form factor solution for your Industrial Ethernet connectivity needs. Each switch features store and forward operation which stops corrupt packets from entering your network and five RJ45 10/100Base-TX Ethernet (10 Mbit/s) and Fast-Ethernet (100 Mbit/s) Ports, which support auto-crossing, auto-negotiation, and auto-polarity. The SPIDER family utilizes a 24V DC Power source (sold separately) and is DIN rail mountable.

SWTC-SPIDER3TX	Hirschmann Unmanaged SPIDER 3 Port 10/100 Ethernet Rail Switch	129.00
SWTC-SPDR4TX1FX	Hirschmann Unmanaged SPIDER 4 Port 10/100 1 Port 100FX Ethernet Rail Switch	259.00
SWTC-SPIDER5TX	Hirschmann Unmanaged SPIDER 5 Port 10/100 Ethernet Rail Switch	149.00
SWTC-SPIDER8TX	Hirschmann Unmanaged SPIDER 8 Port 10/100 Ethernet Rail Switch	199.00

Hirschmann 10Mbps 24 VDC 4 Port DIN Rail Hub (4 Shielded RJ45 Ports)

The Rail Hub RH1-TP is the perfect choice and cost-effective expansion of industrial networks. This unit has four twisted pair ports and can be easily fixed on a standard DIN Rail without any further configuration. The 24 VDC operating voltage is supplied through the terminal block and can also be configured for redundancy. Built-in LEDs indicate collisions, link status, power failure and data receipt for on-site diagnostics.

RH1-TP	4 Port DIN Rail Hub (4 10Base-T Ports)	325.00

Hirschmann 10Mbps 4 Port BNC, Fiber ST, RJ45 24 VDC DIN Rail Hub

The RH1-CX+ four port, 10Mbps Ethernet rail hub is the perfect choice for cost-effective expansion of industrial networks. This unit has one 10Base 2 BNC Coax port, one 10Base FL Duplex ST Multimode port and two 10Base T RJ45 ports. The unit can be easily mounted on a standard DIN Rail and features 24 VDC operating voltage which is supplied through the terminal block and can also be configured for redundancy. Built-in LEDs indicate collisions, link status, power failure and data receipt for on-site diagnostics.

RH1-CX+	Hirschmann 10Mbps 4 Port BNC, Fiber ST, RJ45 24 VDC DIN Rail Hub	599.00

Hirschmann 24 VDC DIN Rail Power Supply

The RPS30, RPS60 and RPS120 24V DC power supplies are used when access to 24 VDC power at your DIN rail is not present. The RPS Series supports versatile, selectable input voltage ranging from 100-120/220-240 VAC. Additionally, these power supplies feature easy to reach front mounted connection blocks and high short-circuit current, giving the devices a large 'start-up window' meaning the units start reliably even with awkward loads experienced with DC-DC converters, motors etc.

RPS30	24 VDC DIN Rail Power Supply, 1.3A	126.00
RPS80-EEC	24 VDC DIN Rail Power Supply, 3.4A	199.00
RPS120-EEC	24 VDC DIN Rail Power Supply, 5A	449.00

Hirschmann Industrial HiVision Network Management Software

The Operator Edition of Hirschmann's HiVision Network Management software enables users to see the status of the network at a single glance. This intelligent program provides a display of the network with its hierarchical structure and topology for the devices of any given manufacturer. HiVision enables secure and easy configuration as well as the monitoring of industrial network components in real time. Features include device state, link and connection state (cable break, utilization), power supply and fan state, ICMP (Ping) and SNMP availability. Protocol support includes HiDiscovery, ICMP(Ping), SNMPv1, SNMPv2c, SNMPv3. Can be used with Windows 2000 / XP Linux (from kernel 2.2, glibc 2.0).

HIVIS OE 50	Industrial HiVision - Operator Edition, 50 Nodes	979.00
HIVIS OE 100	Industrial HiVision - Operator Edition, 100 Nodes	1399.00
HIVIS OE 250	Industrial HiVision - Operator Edition, 250 Nodes	2239.00
HIVIS OE 500	Industrial HiVision - Operator Edition, 500 Nodes	3219.00

RS2-TX

EAGLE-1TX-1TX

EAGLE-1TX-1FX

RS2-5TX

RS2-5TX/FX

SWTC-SPIDER5TX

RH1-TP

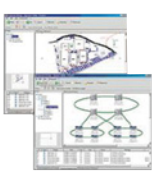
RH1-CX+

RPS30

RPS120-EEC

RPS80-EEC

HIVIS OE



DG-WISP

DG-PSTS-WMEI-1

DG-WAVESPEED-S

DG-PSTS-4

DG-PSTS-H-4

DG-SP

DG-CM-32

WHEN RELIABILITY MATTERS™ Digi

Item #	Description	List Price

Digi Connect Wi-SP

The Digi Connect Wi-SP is the industry's first wireless serial server to provide enterprise-class wireless security through a complete set of strong encryption and authentication services, which are compliant with the WPA2 and 802.11i standards. It also offers additional unique features such as comprehensive product customization options and intelligent remote management and monitoring through Digi Connectware® Manager device management software.

DG-WISP	802.11b to RS232/422/485 Wireless Device Server	359.95

Digi PortServer TS W MEI Series Device Servers

The PortServer TS W MEI family of serial servers makes it easy to network-enable serial devices to a wireless 802.11b infrastructure. Users will appreciate the new external antenna and hidden wireless card offered by the versatile one-, two-, and four-port solutions. PortServer TS W MEI also delivers easy installation through an auto-run wizard on the CD for Microsoft® and UNIX® platforms, RS-232/422/485 serial ports for connectivity to almost any serial interface, and many advanced networking features.

DG-PSTS-WMEI-1	Digi PortServer W MEI 1 Port	689.95
DG-PSTS-WMEI-2	Digi PortServer W MEI 2 Port	729.95
DG-PSTS-WMEI-4	Digi PortServer W MEI 4 Port	799.95

Digi Wavespeed/S RS232 to Bluetooth Wireless Adapter

The Wavespeed/S Bluetooth wireless serial adapter offers a secure, standards-based solution to enable wireless RS232 serial data transfer between peripheral devices and a host. This standalone solution increases user mobility in mission-critical applications such as mobile computing (emergency vehicles, delivery trucks), medical and retail/POS.

DG-WAVESPEED-S	Digi Wavespeed/S Class 2 RS232 to Bluetooth Adapter (10 meter range)	259.00

Digi PortServer TS Series Device Servers

The Digi PortServer TS family of device servers delivers standard serial-to-Ethernet connectivity simply and reliably. These robust device servers are ideal for applications requiring COM ports or where TCP/UDP Sockets, or UDP multicast functionality is required. Theses device servers include Digi's patented RealPort® COM port redirector technology, which makes it possible to establish a connection between the host and networked serial device by creating a local COM or TTY port on the host computer, allowing existing software applications to work without modification.

DG-PSTS-4	Digi PortServer TS 4 RS232 RJ45 (10 Pin) Includes Power Supply	459.95
DG-PSTS-8	Digi PortServer TS 8 RS232 RJ45 (10 Pin) Includes Power Supply	925.95
DG-PSTS-16	Digi PortServer TS 16 RS232 RJ45 (10 Pin) Includes Power Supply	1139.95

Digi PortServer TS MEI and H Series Device Servers

The Digi PortServer TS MEI (Multi-Electrical Interface, RS-232/422/485) makes it easy to connect any serial device to your network. These device servers combine the inherent benefits of data networking with proven asynchronous connectivity to deliver powerful, yet simple Ethernet connectivity for all your serial devices. The PortServer TS MEI series delivers universal and powerful features including data security via SSHv2, port buffering, and full SNMP management, making it ideal for applications such as console management where device management and monitoring are critical. PortServer TS H series features operating temps of -35° to 70° Celsius.

DG-PSTSMEI-2	Digi PortServer TS MEI 2 RS232/422/485 RJ45 (10 Pin)	389.95
DG-PSTSMEI-4	Digi PortServer TS MEI 4 RS232/422/485 RJ45 (10 Pin)	489.95
DG-PSTSMEI-8	Digi PortServer TS MEI 8 RS232/422/485 RJ45 (10 Pin)	1039.95
DG-PSTSMEI-16	Digi PortServer TS MEI 16 RS232/422/485 RJ45 (10 Pin)	1419.95
DG-PSTS-H-2	Digi PortServer TS H 2 RS232/422/485 RJ45 (10 Pin)	499.95
DG-PSTS-H-4	Digi PortServer TS H 4 RS232/422/485 RJ45 (10 Pin)	649.95
DG-DIN-PS	DIN Rail Adapter for PortServer TS (MEI&H) 1,2,4 Port Units	24.95

Digi One SP 1 Port Device Server

The Digi One SP serial server makes it easy to connect any device with a serial port to the Ethernet. The compact design of the Digi One SP delivers cost-effective performance and capability in one of the smallest form factors available. The Digi One SP delivers efficient serial-to-Ethernet connectivity and is ideal for applications where TCP Socket, UDP Socket, or UDP multicast functionality is needed.

DG-SP	Digi One SP 1 Port Device Server	159.95

Digi CM Series Console Servers

The Digi CM series console servers provide in-band or out-of-band console management of any network equipment with a serial console port. Remote out-of-band management is made easy for administrators, who can securely monitor and control servers, routers, switches, PBXs, firewalls and other network devices from anywhere on the corporate TCP/IP network, over the Internet, or through dial-up modem connections using Digi's best-in-class integrated web user interface. Digi CM is the first console server to provide a secure Graphical User Interface (GUI) for easy out-of-band management of Microsoft Windows Server 2003 systems. Its free KVM feature enables fast, low-bandwidth remote desktop access to perform application level tasks via RDP and VNC.

DG-CM-8	Digi Console Server 8 Port RJ45 (8 pin) RS232 Ports	1499.00
DG-CM-16	Digi Console Server 16 Port RJ45 (8 pin) RS232 Ports	1799.00
DG-CM-32	Digi Console Server 32 Port RJ45 (8 pin) RS232 Ports	2599.00
DG-CM-48	Digi Console Server 48 Port RJ45 (8 pin) RS232 Ports	3699.00

Videos
How-to videos help with some of today's popular product applications. L-com.com/Tips

Item #	Description	List Price

Abound RS232 to 802.11b Wireless Bridge

The Abound WLAN-ARS1000 dual RS232 Serial 802.11b WLAN Bridge easily brings wireless connectivity to any RS232 device via standards based 802.11b in an easy to configure and secure manner. The WLAN-ARS1000 enables remote accessibility for services and support to any legacy RS232 devices and eliminates cable interference and ground loops in addition to expanding operating distances beyond cabling limitations. Its external antenna design allows the use of a third party antenna for extended range and performance. The unit is easy to set up and supports multiple configuration choices through a Windows-based installation utility via either the WLAN, RS232 or USB port. The WLAN-ARS1000 Site Survey utility allows users to browse the available active access points for ease of connection in the network.

WLAN-ARS1000	Abound RS232 to 802.11b Wireless Bridge	299.00

Abound RS232, RS422, RS485 to Ethernet Dual SerialBridge

The Abound ARS1200 Ethernet Dual SerialBridge provides connectivity to any RS232, RS422 or RS485 serial device via an Ethernet LAN in a simple and secure manner. The ARS1200 enables remote accessibility for services and support to any legacy serial devices within a wired Ethernet LAN environment. It is extremely easy to set up via web browser with password protection. Its flash-upgradeable firmware provides future ease of upgradeability support and services. The ARS1200 supports full and half-duplex transmission, software and hardware flow control, and has programmable baud rate to maximize application optimization.

ARS1200-001	Abound Ethernet Dual SerialBridge	179.95

Abound Serial to Ethernet Fiber Optic Dual SerialBridge

The Abound ARS1300 Ethernet Optical Dual Fiber Dual SerialBridge provides connectivity between an Ethernet LAN and serial devices via Multimode or Single Mode fiber optic cabling. This product features one Fiber ST (or SC) interface that connects to an Ethernet LAN. The maximum fiber distance supported is 120Km (Single Mode fiber version. It is extremely easy to set up via web browser with password protection. Flash-upgradeable firmware provides future ease of upgradeability support and services. The ARS1300 supports full and half-duplex transmission, software and hardware flow control, and has programmable baud rate to maximize application optimization. Several Singlemode versions are available please call for details.

ARS1300-220C	Abound Ethernet Fiber Dual SerialBridge, SM SC, 20Km	449.95
ARS1300-220T	Abound Ethernet Fiber Dual SerialBridge, SM ST, 20Km	449.95

Abound WLAN Dual SerialBridge

The Abound ARS1120 802.11b wireless Dual SerialBridge easily brings a wireless connection to any serial device in a simple and secure manner. The ARS1120 has a broad range of networking functions utilizing TCP/IP and UDP/IP to provide serial tunneling. It is easy to set up using a secure web browser. Its flash-upgradeable firmware provides future upgradeability. Additionally, the ARS1120 Site Survey function allows users to browse the available active Access Points facilitating easy network connection. It also supports full mobility and seamless roaming from cell to cell. Its enhanced security features include 64 bit and 128 bit WEP (Wired Equivalent Privacy) encryption. Contact us today for large project volume pricing.

ARS1120-001	Abound WLAN Dual SerialBridge	249.95

Abound ADK Series Mounting and Adapter Accessories

The Abound ADK series accessories consist of a DIN Rail mounting kit, which provides the ability of any Abound ARS SerialBridge device to be either wall or DIN Rail mounted and several adapters which convert RS232/422/485 wiring utilizing RJ45, DB9 and terminal strip interfaces. These products offer flexibility and versatility for your Abound network designs.

ADK1000-000	Abound DIN Rail Mounting Kit	10.00
ADK1120-002	Abound DB9 to RJ45/RS232 Adapter	20.00
ADK1120-003	Abound DB9 to RJ45/RS422/RS485 Adapter	20.00
ADK1120-004	Abound DB9 to Terminal Strip Adapter	20.00

Passport Networks ESport RS232/422/485 to Ethernet Device Servers

The ESport-10x Ethernet device servers connect RS-232, 422, 485 serial devices to a 10/100 Ethernet LAN/WAN providing a reliable communications connection. The ESport-10x Windows driver installs virtual COM ports in the Device Manager of the operating system. The ESP101 features one RS232/422/485 DB9M port and one RJ45 10/100Ethernet port. The ESP102 features a single RJ45 10/100 Ethernet port and two DB9M ports, one port supports RS232/422 and 485 and the other only supports RS232. The ESP104 ships with its own external power supply (do not use the ESP-PWR power supply with the ESP104).These products can be powered by an external DC power supply or by an optional 9VDC power adapter. An optional DIN Rail mounting kit is sold separately. Includes a 1-year manufacturer's warranty.

ESP101	Passport Networks Single Port DB9 RS232/422/485 to RJ45 10/100 Device Server	125.00
ESP102	Passport Networks Dual Port DB9 RS232/422/485 to RJ45 10/100 Device Server	169.00
ESP104	Passport Networks Four Port DB9 RS232/422/485 to RJ45 10/100 Device Server	359.00
ESP-PWR	9VDC 500mA Power Adapter	10.00
PPN-12VDC-PWR	12V DC DIN Rail Power Supply	59.99
DK-35A	DIN Rail-mounting Kit (35 mm)	5.00

RoHS Compliant LAVA Ethernet-to-Serial 4 Port Device Server

The ES4-232 is ideal for POS systems, security systems, industrial automation, building automation, or any application using RS232 devices. The Lava ES4-232, four-port RS232 device server, provides four serial ports that are network-enabled, simple to install, configure, and control. Any serial device can send its information to the ES4-232, which then places that information on the Ethernet network. The serial ports support 115.2 kbps throughput rates each. Additionally, each ES4-232 Includes Lava Ether Link Manager software that makes this the easiest device in its category to install and use. By utilizing the ES4-232 one PC is capable of managing hundreds of serial ports, even remotely.

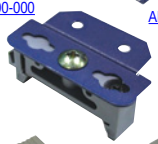
ES4-232	LAVA Ethernet-to-Serial 4 Port Device Server	269.00

WLAN-ARS1000

ARS1200-001

ARS1300-220C
ARS1300-220T

ADK1000-000


ARS1120-001

ADK1120-002
ADK1120-003

ADK1120-004

ESP102

ESP104

ESP-PWR

PPN-12VDC-PWR

DK-35A

ES4-232

Item #	Description	List Price

Telebyte RS232 Fiber Optic Line Drivers - Achieve Distances to 2km

The TB271 Series of RS232 Fiber Optic Line Drivers provides maximum protection from ground currents and noise interference between equipment as well as increases operating distances to up to 2km. Three versions are available, supporting RS232 serial interfaces. The TB271 Series achieves power from the Transmit Data line, whereas, the TB271A series has an external power supply (included). DB25M and DB25F versions available. Fiber optic connection utilizes Dual ST connectors and duplex 62.5/125 Multimode cabling.

TB271M	RS232 Fiber Line Driver, DB25M, Self Powered	129.00
TB271F	RS232 Fiber Line Driver, DB25F, Self Powered	129.00
TB271AF	RS232 Fiber Line Driver, DB25F, Externally Powered	139.00

RoHS Compliant Telebyte RS422 and 485 Fiber Optic Line Drivers - Protect Against Noise and Ground Loops

Similar to the TB271 series except designed for RS422 and RS485. Both units utilize DB25F and dual fiber ST ports. For use with duplex multimode fiber optic cabling.

TB272F	RS422 Fiber Line Driver, DB25F, Externally Powered	129.00
TB276F	RS485 Fiber Line Driver, DB25F, Externally Powered	139.00

Telebyte RS232 Fiber Optic Auto Powered Line Driver

The TB9271 RS232 fiber optic auto powered line driver features a standard DB9 Female interface and Dual ST style fiber connectors. It can be installed in applications requiring very high data transmission rates, offers resistance to Electromagnetic Interference (EMI) and isolation from lightning-induced current surges and ground loops. The unit employs an RS232 data interface, can achieve 56Kbps asynchronously and operates in either half- or full-duplex modes over dual fibers up to 2km in length.

TB9271	RS232 Fiber Optic Auto Powered Line Driver	129.00

RoHS Compliant Telebyte Single mode to Multimode Fiber Converter

The TB279 provides transparent conversion between fiber optic devices utilizing multimode fiber and those with single mode fiber. Features of the TB279 include the ability to operate from DC to 2.5Mbps. This allows a variety of applications to take advantage of the transmission capability of the device and fiber cable. The TB279 is powered by a wall-mounted 12VDC adapter.

TB279	Single mode to Multimode Converter	649.00

RoHS Compliant Telebyte RS232, 422 or 485 Fiber Optic Modem - DIN Rail Mountable

The model TB8277 is a unique asynchronous fiber optic modem whose optical interface can operate in either point to point or ring (daisy chain) configurations and whose electrical interface can also operate in point to point or multi-drop configurations depending on the user selected interface. The electrical interface is switch selectable between RS232, RS422 and RS485. The TB8277 is supplied with a power cord for the DC input. An optional AC power adapter is available for installations where 12 VDC is not accessible.

TB8277	DIN Rail Fiber Optic Media	229.00
TB8277-110PSU	Optional 110VAC Power Supply	14.95

RoHS Compliant Telebyte RS232 to RS422 Interface Converter - Self-powered DB9 Connector

Adding an RS422 interface to a PC is now a snap. The TB253P Interface Converter does this for full duplex signals at data rates up to 19.2 KBPS, without requiring AC or DC power. The unit features a DB9F connector, (allowing it to be plugged directly into any one of the PCs Comm ports) and RJ11 (6x4) jack.

TB253P	RS232 to 422 Interface Converter, DB9F, Self-powered	59.00

RoHS Compliant Telebyte RS232 to RS422 Interface Converter - Non-powered DB25 Connector

The TB263 RS232 to RS422 interface converter offers the user the benefits of other converters without the problem of supplying power. With only TD, RD and Ground the TB263 will provide operation at any allowed speed over 8,000 feet of twisted pair into a load of 120 Ohms. DB25 female connector and 4 screw terminals and RJ11 (6x4) jack.

TB263F	RS232 to 422 Interface Converter, DB25F, Non-powered	64.95

RS232 to Current Loop Converter

The Telebyte TB65A is a small, versatile, RS232 to Current Loop Converter for use with teletypes or computers providing local terminal input via a 20mA (or 60mA) current loop. The TB65A includes a wall-mounted transformer and internal power supply circuitry. Additionally the TB65A provides switch selection of all RS232 operating modes including: Half Duplex - Passive Loop, Half Duplex - Active Loop, Full Duplex - Passive Loop, and Full Duplex - Active Loop. This product will drive 20mA and accept 20mA or 60mA loop currents and operates from DC to 9.6 KBPS.

TB65A	RS232 to Current Loop Converter (Includes Power Supply)	118.00

RoHS Compliant Economy RS232 Fiber Optic Line Driver (Port or Ext Powered)

The ICC45B-001 RS232 Fiber Optic Line Driver provides users a compact, low cost solution for extending RS232 data over extended distances by using fiber optic cabling. The ICC45B-001 features a DB25F input connector and duplex ST connectors for an output. This device can handle up to 115Kbps and supports cable lengths up to 2km over multimode fiber cabling. This economical converter can either be port powered or powered by an optional external power adapter (sold separately). The ICC45B-001 can be used with standard 62.5/125 fiber cable.

ICC45B-001	Economy RS232 Fiber Optic Line Driver	69.00

RoHS Compliant Economy RS232 to RS422/RS485 Interface Converter

This RS232 to RS422/RS485 Interface Converter is an economical solution to interface problems. These devices are self-powered and feature a DB25F RS232 port and either a 4-pin terminal block or a RJ45 jack for connecting devices together.

ICC47A-013	Economy RS232 to RS422/RS485 Interface Converter with 4-Pin Terminal Block	39.95
ICC49A-013	Economy RS232 to RS422/RS485 Interface Converter with RJ45 Jack	39.95

Economy RS232 to V.24 Interface Converter

The ICC47B-014 model RS232 to V.24 Interface Converter provides users with an economical way to extend RS232 signals using standard twisted pair cabling. The ICC47B-014 features a DB25F input connector and a 4-pin terminal block for the V.24 side. The ICC47B-014 supports data rates up to 128Kbps and distances up to 1000 meters. Includes a 9VDC external power supply.

ICC47B-014	Economy RS232 to V.24 Interface Converter with 4-Pin Terminal Block	32.95

Item #	Description	List Price

ICP DAS USA I-7000 Series Data Acquisition I/O Modules

The I-7000 Series Modules from ICP DAS support a wide range of industrial control signals and systems. The I-7000 PC-based data acquisition modules are very flexible meeting many types of industrial applications. These modules can provide PID control, motion control, data acquisition and many other complex functions including data log functions. Each module is addressable allowing up to 256 units to be linked together via a two-wire RS485 connection. Both analog and digital options are available.

I-7015	6 Channel Analog RTD Module	375.00
I-7017	8 Channel Analog Input Module	230.00
I-7018	8 Channel Analog Thermocouple Input Module	235.00
I-7021P	16 Bit Analog Output Module	265.00
I-7041	14 Channel Digital Isolated Input Module	135.00
I-7044	4 Channel Isolated Digital Input and 8 Output Module	145.00
I-7051	16 Channel Isolated Digital Input Module	165.00
I-7055	8 Channel Isolated Digital Input and 8 Output Module	155.00
I-7060	4 Channel Isolated Digital Input and 4 Relay Output Module	140.00

ICP DAS USA I-8000 Ladder Logic PLC Controllers

The I-8000 PLC controllers offer industrial integrators a powerful platform on which to implement precision industrial control via ICS Triplex's ISaGRAF development environment. With an ISaGRAF runtime onboard, the I-8000 offers all six IEC-1131 languages, for diversified process control, in a modular and robust architecture! ICP DAS offers the I-8000 PLC in a multitude of chassis and connectivity configurations! The I-8000 products provide an excellent solution for users looking to implement a powerful localized, Ethernet based, rack mounted control / data acquisition solution.

I-8437	ISAGRAF Embedded PLC 4 I/O Slots - 10Mb Ethernet Port	939.00
I-8837	ISAGRAF Embedded PLC 8 I/O Slots - 10Mb Ethernet Port	969.00

ICP DAS USA I-8000 Series Digital I/O Data Acquisition Modules

ICP DAS offers a multitude of versatile digital I/O modules to meet the ever-changing needs of industrial consumers. From basic digital I/O, to high speed counters, and even relay based I/O, ICP DAS can meet your distributed I/O needs. The I-8000 digital I/O family offers complete, commercial off the shelf solutions for almost any digital I/O application.

I-8040	32 Channel Digital Input Module	229.00
I-8041	32 Channel Digital Output Module	229.00
I-8042	16 Channel Digital Input/Output Module	229.00
I-8053	16 Channel Isolated Digital Input Module	149.00
I-8054	16 Channel Isolated Digital Input/Output Module	149.00
I-8058	8 Channel Isolated Digital Input Module	129.00

USB to RS232/422/485 Converter

The CVTR-I-7561 is a rugged yet cost-effective module that is used for transferring serial data over USB. This converter allows you to connect your serial devices to systems using a USB interface such as a PC. The CVTR-I-7561 contains a Self Tuner chip, which auto-tunes the baud rate and data format to the RS485 network. CVTR-I-7561 module derives its power from the USB port and does not require an external power supply. This versatile converter also features a high-speed 115.2 Kb/s transmission rate, and supports a multitude of O.S. independent RS232/422/485 Ports.

CVTR-I-7561	USB to RS232/422/485 Converter	125.00

RS232 to RS485 Protocol Converter

The CVTR-I-7520 seamlessly converts the RS232 protocol to RS485 all in one rugged, economical package. Features include auto switching baud rate of 300~115,200 BPS and a Self Tuner chip, which auto-tunes the baud rate and data format to the RS485 network. This converter also supports 256 modules max. in one RS485 network without repeater and 2,048 modules max. in one RS485 network with a repeater. Power supply sold separately.

CVTR-I-7520	RS232 to RS485 Protocol Converter	85.00
PWR-24-110	ICP DAS USA 110V AC to 24V DC Power Adapter	12.00

RS232 to CAN Protocol Converter

The CVTR-I-7530 offers an economical yet rugged solution for converting RS232 to CAN protocol. Features include maximum transmission speeds up to 1Mbps for CAN and 115.2Kbps for RS232 as well as support for both CAN 2.0A and CAN 2.0B standards. This converter can be easily mounted on a DIN rail and features DB9 connectors. Power supply sold separately.

CVTR-I-7530	RS232 to CAN Protocol Converter	295.00
PWR-24-110	ICP DAS USA 110V AC to 24V DC Power Adapter	12.00

ICP DAS 5 and 8 Port 10/100TX Industrial Ethernet Switches

ICP DAS offers economical yet robust industrial Ethernet switches for harsh environment applications. The NS-20X series features either 5 or 8 auto-negotiating ports via RJ45 jacks. These sturdy DIN rail mountable switches are powered by an external 24V DC power Supply (PWR-DP640 and PWR-DP1200 sold separately). Additional features include Store-and-forward architecture ensuring bad packets are not propagated throughout the network, operating temperatures from –30 ~ +75°C and 2.0 Gbps high performance memory bandwidth. These rugged plug and play switches are the perfect solution for all your Industrial Ethernet networking needs.

SWTC-NS205	5 Port 10/100TX Industrial Ethernet Switch (Plastic Case)	99.00
SWTC-NS208	8 Port 10/100TX Industrial Ethernet Switch (Plastic Case)	155.00
PWR-DP640	Din Rail Power Supply 24V DC /1.7A	129.00
PWR-DP1200	Din Rail Power Supply 24V DC /5A	219.00

I-7021P I-7060

I-8437

I-8837

I-8040 I-8053

CVTR-I-7561 CVTR-I-7520

PWR-24-110 CVTR-I-7530

SWTC-NS205 SWTC-NS208

PWR-DP640 PWR-DP1200

See The Video
www.L-com.com/Videos/A07

Test Shielded RJ45

DXB66

DXB64A

DXB65

DX45

Item #	Description	Code	List Price

DXB66 UTP, FTP and Coaxial PROFESSIONAL TEST SET for LAN Cabling and Premise Wiring

L-com's DXB66 Remote Cable Tester provides accurate testing of premise cabling and patch cords used in local area networks. The unit verifies pairing following the EIA/TIA568 standard. It also tests shield continuity of shielded RJ45 connectors which is required in European building installations and areas where noise is prevalent. BNC equipped, coaxial cabling such as Ethernet 10Base-2 can also be tested.

- Sequencing LEDs verify continuity of 4 pair UTP/FTP cabling following EIA/TIA568 A or B pair designations (Ethernet 10Base-T, Token Ring and TP-PMD are all accounted for within the EIA568 code)
- Tests for presence of shield in Foil Twisted Pair (FTP) or Token Ring - Shielded Twisted Pair (STP) cabling
- Internal circuitry is fully protected against live cable damage
- BNC coax test checks Ethernet 10Base-2 busses and patch cords (adapters are available for testing other coaxial terminations)
- Dual colored LEDs identify shorted, open, or reversed pairs
- Remote and master units separate for premise wire tests and reattach for patch cord checking
- Convenient size with exclusive slide lock mechanism allows effortless patch cord and premise cable testing
- Easy to operate with all instructions listed on the faceplate
- Adapters available for testing Token Ring cabling utilizing Type A or B, DB9, or RJ45 connectors
- Runs on one 9V alkaline battery (included)
- Includes belt mountable soft leatherette case, 2 screened patch cords and informative instruction booklet

DXB66	UTP, FTP and Coaxial Professional Test Set	A, C, D, E, F	69.00
DXB66-CC	Additional DXB66 Carrying Case with Beltstrap		12.95

Specifications:

Display	5 LEDs Master
	2 LEDs Remote
Power	9V Alkaline battery
Current drain (on)	25 mA
Normal power consumption	225 mW
Maximum power consumption	630 mW
Minimum battery operation voltage	6.0Vdc
Maximum cable length (4pr.)	tested to 1000 ft
Over voltage protection level (max).	30 V dc
Allowable maximum current @ inputs	0.3 A dc
Continuous withstand overvoltage rating	20.0 V dc @ 0.1 A
	for 5 seconds
Master & Remote dimensions connected	6.0 in x 2.3 in x 1.0 in
Master and Remote weight	6.0 oz.

DXB64A Triple Function Cable Tester - 10Base-T, Token Ring (RJ45) and EIA568

This easy-to-use sequential scan cable tester provides instant testing and identification of today's most popular UTP cabling schemes. Four, two-color LEDs verify continuity of up to four pairs while instantly detecting opens, shorts and miswires. Specially designed slide attachment allows tester's master and remote sections to be separated when checking installed wiring. Blinking light identifies power on and low battery. Small and light enough to fit neatly in a briefcase, toolbox or pocket. Equipped with 9V alkaline battery and protective leatherette case.

- Equipped with RJ45 jacks
- Tests 4 pair UTP cabling following EIA/TIA568A or B standards
- Master and remote units split apart for premise runs, then reattach for bench testing
- 4 dual polarity LEDs sequence from left to right identifying shorts, opens and miswires
- Supplied with one 9V Energizer alkaline battery and carrying case

DXB64A	EIA568 (RJ45) Remote Cable Tester	B, C, D, E, F	45.95

DXB65 Dual Function Ethernet Cable Tester - 10Base-T and 10Base-2 (ThinNet)

Specially designed for the Ethernet user. This tester is a full-function BNC coaxial tester and 10Base-T UTP tester rolled into one. Detects shorts and opens on coaxial lines terminated with male BNC connectors and also tests for continuity of the 1-2 and 3-6 pairs used in 10Base-T wiring. Tester master and remote units slide apart for checking installed wiring. Auto shut-off when cable is disconnected. Small, lightweight and easy to use. 9V alkaline battery and convenient leatherette carry case supplied.

- Equipped with RJ45 and BNC jacks
- Tests 2 pair UTP cabling used in 10Base-T Ethernet runs.
- Tests coaxial cabling terminated with BNC connectors used in 10Base-2 Ethernet busses
- Master and remote units split apart for checking premise runs and installed coaxial busses.
- Can be used for locating shorts in coaxial patch cords or T adapters
- Supplied with one 9V Energizer alkaline battery and carrying case

DXB65	Ethernet 10Base-2 (BNC) & 10Base-T (RJ45) Remote Cable Tester	A, B	39.95

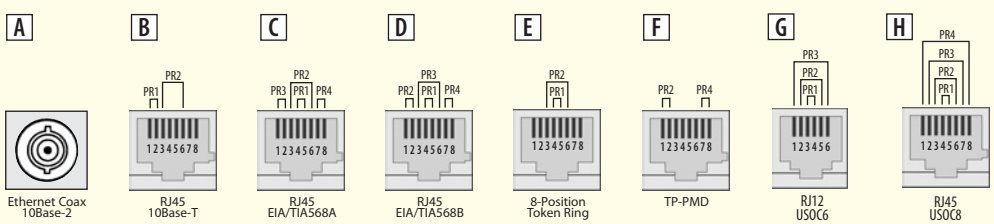
L-com's Modular Patch Cord Testers Allow Benchtop Testing of Popular Cable Types

The DX45 modular patch cord tester quickly and easily tests the continuity of modular cables. Simply plug both cable ends into the unit and observe the indicators on the faceplate. Dual colored LED's verify if cabling is properly wired for data use (straight through pinning) versus telephone use (crossed pinning). Additionally, the DX45 identifies Opens in a cable. The DX45 is intended for cabling terminated with 8 position modular plugs (RJ45), and 6 position modular plugs (RJ12/11) using the included inserts. The DX45 is powered by a single 9V alkaline battery already installed for instant use. Outside dimensions: 3.8" x 2.4" x 1.1". Features a 1-year manufacturer's warranty.

DX45	8 Position Modular Patch Cord Tester (RJ45) with Inserts	G, H	22.95
DXBC	Carrying Case for DX Testers		3.99

Distributors Wanted - Call 1-800-343-1455

Code shows tester ability to check:



Item #	Description	Code	List Price

Portable Cable Testers - Indispensable Tools for the Cable Installer or Technician

Our DX series of cable testers are invaluable tools for bench and remote testing of modular, coaxial and twinaxial cable testing. All the units are built within a black ABS plastic case which can handle the abuse of even the roughest installer or technician. Modular patch cord testers utilize two high grade modular jacks for input and output connection to telco cables. Coaxial and twinaxial testers come complete with termination units which allow the technician to test remote cable runs. All of our DX and DXB series testers are exclusively designed and manufactured by L-com. Custom designs will be considered for volume users or OEM's by calling our Technical Support Department at 1-800-343-1455.

Coaxial Remote Cable Testers for Testing Extended Cable Runs

L-com's coaxial remote cable testers facilitate fast, simple continuity testing of common types of cabling. Each kit is equipped with a tester unit and a terminating device which allows verification of permanently installed cabling as well as patch cords. To test, just fasten the termination device to one end of cable and verify results at the opposite end with the master unit. Good continuity, shorts and opens, are all identified by reading the LEDs on the faceplate. The DX35A is used for coaxial cables with BNC, TNC, or Wang (BNC+TNC) connectors. Each model includes an installed 9V alkaline battery as well as a carrying case for storage. Appropriate terminators are included. Outside dimensions are: 3.8" x 2.4" x 1.1".

DX35A	Coaxial (BNC and TNC) Remote Cable Tester	A, B	24.95
DXBC	Carrying Case for DX Testers		3.99

BNC Coaxial Tester with Intermittent Grabber

The DXB4 contains circuitry for locating intermittent shorts that can be almost impossible to locate. Simply plug both ends of a coaxial cable into the BNC jacks and observe the three LEDs. Intermittent shorts that are normally shown as a flickering LED or a moving needle on an Ohm meter are locked-on with the exclusive intermittent grabber circuitry. The tester can be combined with adapters to test terminations other than BNC, SMA or F adapters. Unit comes complete with an installed 9V alkaline battery. Leatherette case supplied only with kits.

DXB4	BNC Coax Cable Tester with Intermittent Grabber	A	15.50
DXBC	Carrying Case for Tester and Terminators		3.99

Coax Adapter Kit for L-com's DX Testers

This flexible adapter kit allows you to test coaxial cables terminated with SMA, RCA and F style connectors. These versatile adapters easily connect to the BNC ports of L-com's DX Coax testers. Now, with one test kit it is possible to test coax cables used in CATV, Audio and Data applications. Includes a 1-year manufacturer's warranty.

DX-COAX-ADPT	Coax Adapter Kit	C, D, E	12.99

MICROPULSE™ Fiber Optic Light Source - Simple Location of Fiber Runs

This unit eases the difficulty of tracing fiber optic cable runs within a building by using new MICROPULSE technology. Presently, to trace multimode terminated fiber runs, two types of equipment can be used. The first, a laser source, is expensive and potentially dangerous to one's eyesight if viewed directly. These units work well for locating breaks in fiber runs, however, the cost of the units often exceed $500. The second method is to use an incandescent light source (simple flashlight) with a coupler to connect to the fiber optic termination. These devices produce a low intensity light signal which is difficult to see by the human eye at the far end of the run.

L-com's solution to this problem was simple: Produce a low cost, high intensity light source that is safe to use and easy for the eye to locate. This was done by creating exclusive circuitry that produces an extremely bright red light source which is focused into the fiber optic cable. The light is then pulsed in an on-off manner that is easier for the human eye to locate, especially from a group of fiber runs commonly found in wiring closets or central wiring points. A multi-use coupler is also utilized so that connection to ST, SC, FC, RSD and FSD can be done without additional coupling adapters or cables.

- Ultra High Intensity Red Source LED (660nm, 1400 mcd)
- Exclusive MICROPULSE Signal Pulse Technology (Patent Pending)
- Multi-Use Coupler Accepts Fiber Connectors with 2.5mm Ferrule
- Dual Output - Pulsed or Steady Light Signal
- Runs on One 9V Alkaline Battery (Included)

DXL10	MICROPULSE Fiber Optic Light Source	39.95

Micropulse™ Fiber Optic Light Source Kit - Everything for Tracing Multimode Runs

We now offer in kit form our popular Micropulse Fiber Optic Light Source with common adapters used in identifying fiber optic runs. Included in the kit is the DXL10 Micropulse light source, 2 ST-ST simplex couplers, 1 FC-FC simplex coupler, 1 SC-SC duplex coupler, 1 SC-ST duplex adapter and 1 simplex ST-SC multimode patch cord. Also included is a plastic box for organizing the couplers and a belt mountable carrying case.

DXL10K1	MICROPULSE Fiber Optic Light Source Kit	69.00

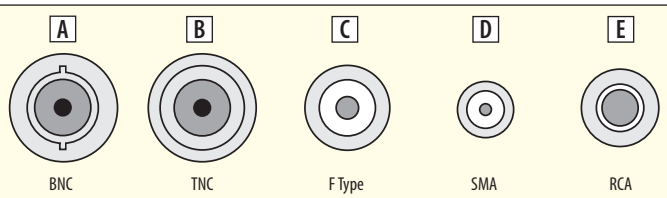
Shielded RJ45 Breakout Box - Exclusively Designed and Manufactured by L-com

L-com's DXR45S breakout box is intended for modifying the wiring in modular cords terminated by RJ45 plugs. The unit incorporates two high grade shielded RJ45 jacks, a nine position dip switch and dual nine position headers. Jumper wires are included in the rear compartment. This unit does not utilize a battery, its intention is for modifying modular cable wiring only.

DXR45	Shielded RJ45 Breakout Box	17.00

Distributors Wanted - Call 1-800-343-1455

Code shows tester ability to check:



DX35A

DXB4

DX-COAX-ADPT

L-com Exclusive

Made in USA
PATENTED

DXL10

DXL10K1 Kit

DXR45

AEMC-CA7024

AEMC-CA7026

AEMC-CA7028

AEMC-TR02

FNMT8200-32A

FNMT8200-49A

FNMT8200-53A

FNMT8200-50A

FNT-PRO

Item #	Description	List Price

AEMC CA7024 TDR Fault Mapper

The AEMC Fault Mapper is a hand-held, alpha-numeric, TDR (Time Domain Reflectometer) Cable Length Meter and Fault Locator, designed to measure the length of electrical and communication cables. It can also indicate the distance to a fault in the cable (open or short), given access to only one end of a two or more conductor cable. By incorporating fast-edge step TDR technology, the CA7024 measures cable length and indicates the distance to open or short circuit faults to a range of 6000 ft (2000m), on virtually any type of cable. The CA7024 indicates the cable length or fault distance and description alpha-numerically on a 128 x 64 graphical LCD. Includes soft carrying case, BNC pigtail cable with alligator clips, four 1.5V AA batteries and user manual.

AEMC-CA7024	TDR Fault Mapper	495.00

AEMC CA7026 Fault Mapper Pro Tele/Coax/Parallel Cable Tester

The Fault Mapper Pro is a hand-held graphical TDR (Time Domain Reflectometer) designed for identifying and locating faults on power and communication cables, given access to one end only. The CA7026 measures cable length and indicates the distance to fault cables and terminations to a range of 11,700 ft (3500m) on virtually any type of cable of two or more conductors. The CA7026 shows a reflection profile of the cable under test as an oscilloscope-like trace on a 128 x 64 pixel graphical LCD. A movable cursor can be aligned with points on the trace; the distances displayed will automatically update the cursor position. Includes soft carrying case, BNC pigtail cable with alligator clips, four 1.5V AA batteries and user manual.

AEMC-CA7026	Fault Mapper Pro Tele / Coax / Parallel Cable Tester	795.00

AEMC CA7028 Wire Mapper Pro LAN Cable Tester

The Wire Mapper Pro is a hand-held structured cable mapping and troubleshooting tester designed for use on UTP, STP, FTP and SSTP cabling equipped with RJ45 connectors and wired to either TIA568A/B (ISO 11801 and EN 50137), USOC or ISDN specifications. It detects open circuit pairs, shorts, crossed wires, crossed pairs, reversed pairs, split pairs and shield faults. The CA7028 has the ability to measure and indicate the length of the cable under test, using a Vp (Velocity of Propagation) set by the user, from a built-in library or manually. It will measure and report the length of all four pairs of wires in the cable under test. It also generates an audible tone that is transmitted into all four pairs on the cable under test. Includes soft carrying case, remote ID (#1), two patch cords, four 1.5V AA batteries and user manual.

AEMC-CA7028	Wire Mapper Pro LAN Cable Tester	495.00

RoHS Compliant AEMC TR02 Tone Receiver/Cable Tracer

The TR02 Tone Receiver/Cable Tracer is a small, hand-held tracer that will aid in the identification of tone carrying wires without piercing their insulation. It has a self-contained amplifier and a rugged, moisture resistant mylar cone speaker. When used in conjunction with the tone transmitter function of the AEMC cable testers CA7024, CA7026 or CA7028, wire tracing and locating is quick and efficient.

AEMC-TR02	Tone Receiver / Cable Tracer	49.00

Fluke Networks MicroScanner™ Pro Network Tester

The Fluke Networks MicroScanner Pro is an all-in-one pocket sized network tester that tests both coaxial (RG6, RG59, etc. for CATV/CCTV) and all twisted pair cable (UTP/STP/SSTP). The MicroScanner features an active network identification mode that flashes hub ports and shows if a network tap is operating at 10Mbps or 10/100Mbps and whether it is full or half duplex capable. MicroScanner Pro ensures basic continuity and correct terminations by verifying end-to-end continuity on all four-wire pairs and if the cable under test has the correct wiring scheme (either 568A or 568B). The MicroScanner Pro quickly identifies a fault allowing you to see opens, shorts, crossed pairs, split pairs or any miswires. With the push of a button, MicroScanner Pro's length function uses Time Domain Reflectometry (TDR) to measure the full length of a cable. It determines whether the cable is open or shorted and the distance to the fault. The length measurement is also useful for billing and inventory purposes. MicroScanner Pro's Toner function allows installers to generate a tone for the optional MicroProbe to trace and locate hidden cabling in walls, ceilings or distributions boxes.

FNMT8200-32A	Fluke MicroScanner Pro Network Tester	549.00

Fluke Networks MicroMapper™ Network Tester

The MicroMapper quickly and easily tests twisted pair cabling, giving you visibility of opens, shorts, crossed, reversed and split pairs. Just push the TEST button and MicroMapper will automatically scan all wire pairs for any existing faults in your cable. MicroMapper's built-in tone generator works with the IntelliTone Probe allowing you to trace cable through walls, floors, and ceilings. The MicroMapper also includes a remote unit that allows one person to test installed cabling or patch cords. The MicroMapper kit includes: MicroMapper and MicroMapper Remote, patch cable, 6-volt alkaline battery and user guide.

FNMT8200-49A	Fluke Networks MicroMapper Network Tester	139.00
FNMT8200-53A	Fluke IntelliTone 100 Probe	89.00

Fluke Networks IntelliTone 100 Toner and Probe Kit

The Fluke Networks IntelliTone 100 Toner and Probe Kit allows users to quickly identify network ports and cables using digital signaling methods. Simply attach the IntelliTone Toner to a cable and set the sensing mode on the IntelliTone Probe. IntelliTone technology energizes cable conductors with a smart, synchronized digital signal. Multiple tone types occur in the signal that help you to locate, isolate and validate a cable. Includes: IntelliTone 100 Toner and 100 Probe, coax F connector adapter, RJ11 and RJ45 patch cables, test leads with alligator clips, lanyards, owners CD and quick start guide, (2) 9 volt batteries.

FNMT8200-50A	Fluke Networks IntelliTone 100 Toner and Probe Kit	159.00

Fluke Networks NetTool™ Inline Network Tester

Fluke Networks NetTool Inline Network Tester comes packed with the features IT professionals need. The NetTool can be connected inline between two network devices, listen to the traffic between them and detect common connectivity problems. The NetTool can also automatically ping key devices to verify connection to routers, servers and printers. Users will be able to spot available network resources by seeing MAC and IP addresses, subnet and services offered by active servers, routers and printers. The NetTool Tester can also look for the common wiring problems by testing for cable length, shorts, split pairs or opens, including pin-to-pin wiremap. Users will be able to download test results to document network performance and generate network resource reports. Includes 4 AA batteries and a 1-year manufacturer's warranty.

FNT-PRO	Fluke Networks NetTool Inline Network Tester	2100.00

Item #	Description	List Price

Fiber Optic Power Meter for Multimode and Single mode Cabling

The FOM120 is a general-purpose power meter suitable for both premise and outside plant applications. This unit is ideal for measurement of optical power and optical loss/attenuations in a fiber optic network. The FOM120 meter is calibrated at the four most common industry standard wavelengths 850nm, 1300nm, 1310nm and 1550nm for both single mode and multimode transmitters. The 1mm Germanium detector offers a broad dynamic range of ~60dB which far exceeds the requirements of the majority of users. The FOM120 utilizes a 2.5mm universal connector for both ST and SC connections (other connector styles available upon request). The compact handheld meter (4.94" x 2.75" x 1.2") has an Auto-Shutdown feature to preserve battery life. Runs on 2AA Batteries and includes a 1-year manufacturer's warranty.

FOM12	Fiber Optic Power Meter for Multimode and Single mode Cabling	495.00

Fiber Source for 850/1300nm Fiber Optic Cables

The FOS420 light source is for premises and campus cabling networks with multimode fiber, or single mode fibers under 5km. The ST connector outputs can be adapted to any cable plant with hybrid adapters or hybrid cables. The FOS420 becomes a powerful low cost troubleshooting and maintenance tool when used with an Advanced Fiber Solutions FOM120 power meter.

FOS420	Fiber Source for 850/1300nm Fiber Optic Cables	595.00

Fiber Source for 1310/1550nm Fiber Optic Cables

The FOS430 Laser source is designed for testing Single mode fiber cabling in premise or outside plant environments where long wavelengths are used. The single output allows the user to test at both 1310nm and 1550nm without disconnecting and reconnecting the cable. When used with an Advanced Fiber Solutions FOM120 or FOM220 the FOS430 is ideal for testing insertion loss for single-mode fiber optic cables and connectors. Lightweight, ergonomic design is great for field use.

FOS430	Fiber Source for 1310/1550nm Fiber Optic Cables	1495.00

Multimode Fiber Optic Test Kit

The FTK51MM Multimode Fiber Optic Test Kit allows users to quickly test multimode fiber cabling. The kit features a power meter and light source in a convenient carry case. The power meter supports 850/1300/1310/1550nm light sources and features a 2.5mm universal connector for both ST and SC connections (other connector styles available upon request). The kit's power meter is calibrated at the four most common industry standard wavelengths 850nm, 1300nm, 1310nm and 1550nm for both single mode and multimode transmitters. The 1mm Germanium detector offers a broad dynamic range of ~60dB which far exceeds the requirements of the majority of users.

FTK51MM	Multimode Fiber Optic Test Kit	1095.00

Single mode Fiber Optic Test Kit

The FTK51SM Single mode fiber optic test kit features a fiber optic power meter and light source to quickly and economically test 9/125 Single mode fiber cabling. The power meter supports 850/1300/1310/1550nm light sources and features ST, SC, FC, 2.5mm Universal, LC and 1.25mm Universal connection options. The 2 mm Germanium detector offers a broad dynamic range of ~60dB which far exceeds the requirements for most applications. The kit's power source supports both 1310nm and 1550nm laser sources for Single mode cable testing. Includes a convenient carrying case.

FTK51SM	Single mode Fiber Optic Test Kit	1990.00

Fluke Networks SimpliFiber™ Fiber Optic Test Set

The Fluke Networks SimpliFiber Series offers users a compact and rugged way to test fiber optic cabling. The SimpliFiber has an intuitive four-button panel, a large LCD display screen and a serial port. Save 100 test results in the meter's non-volatile memory and eliminate the need to manually write down results, preventing potential transcription errors. SimpliFiber results can be quickly uploaded to a PC using the free companion Scanlink Tools software allowing users to manage test results, print professional reports or export data into popular spreadsheet formats. The dual wavelength source incorporates an 850nm LED and a 1300nm LED. The optical power meter is calibrated for accuracy at 850nm, 1300nm, 1310nm and 1550nm. The meter features the ability to save a reference power level, allowing a direct display of fiber loss.

FN8250-02	SimpliFiber Meter and 850/1300 ST Source	1379.00
FN8250-04	SimpliFiber Meter and 850/1300 SC Source	1479.00
FN8251-01	SimpliFiber 1310 Laser Source ST	1069.00
FN8251-11	SimpliFiber 1310 Laser Source SC	1069.00
FN8251-02	SimpliFiber 1550 Laser Source ST	1629.00
FN8251-12	SimpliFiber 1550 Laser Source SC	1595.00

Fluke Networks Fiber Installation Test Set

The Fluke Networks Fiber Installation Test Set gives installers the ability to accurately test and verify connections in the field. The test set features a compact, rugged fiber tester that ensures equipment uptime and keeps the job moving. This set includes the Fluke Networks FT120 multimode Fiber Viewer for inspecting fiber end-faces. The tester includes the ability to test multimode fiber at 850nm and 1300nm wavelengths and also works with an optional Fluke Networks Laser Source for measuring loss on single mode fiber. The FNTK200FV Pro Package is ideal for contractors whose fiber installation needs require automated test data recording, results management and report generation. Both packages include the Fluke Networks Fiber Optic Reference Guide - an in-depth guide covering the latest in fiber optic technology.

FNTK100FV	Fluke Networks Basic Fiber Installer Test Set	1595.00
FNTK200FV	Fluke Networks Professional Fiber Installer Test Set	2100.00
FNLS	Laser Source Option 1310/1550nm	3179.00

200X Professional Grade Handheld Fiberscope - Field or Lab Viewing of Fiber Connectors

The FOTH200 is a quality 200X hand held fiberscope that is the ideal tool for inspecting the polish on fiber optic connectors. The unit is made of lightweight cast aluminum making it rugged yet easy to transport. Laser filtered rubber eyecup and ergonomic design is comfortable to use even for long periods. Self illuminated via AA batteries and LED source. Included is a universal adapter which mates with all 2.5mm ferrules such as ST, SC and FC, other adapters are available. One year warranty.

FOTH200	200X Handheld Fiberscope with Universal Adapter	195.00
FOTH-VAPC	8° Adapter for 2.5mm Ferrule (ST, SC, FC)	75.00
FOTH-LC	LC Adapter	45.00

FOS420

FOM12

FTK51MM
FTK51SM

FN8250-02

FN8251-01 FN8251-12

FNTK100FV

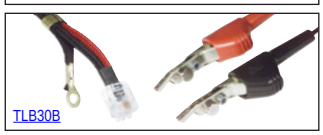
FNTK200FV

FNLS

FOTH200

TLB200
TLB80

TLB10B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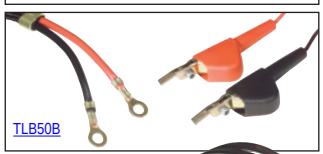
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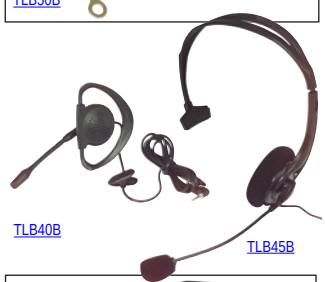

TLB40B
TLB45B

TKP100
Kit

See The Video
www.L-com.com/Videos/A02

DXF11
EC-LMTJ

CS925
CK6

CS925KIT

Item #	Description	List Price

Lil' Buttie Pro Hands Free Telephone Line Test Sets

Small enough to fit in a shirt pocket, the Lil' Buttie Pro is packed with features typically found on more expensive test sets. This unit is ergonomically designed to rest comfortably on the shoulder with proper microphone and speaker placement. The high impact, shock resistant ABS housing is designed to withstand the demands of everyday use. Test cord included. Made in the USA. 1-year warranty.

TLB200 Lil' Buttie Pro FEATURES:

- Five Number Memory
- Tone and Pulse Dialing
- Microphone Mute
- Last Number Redial (19 Digits)
- Electronic Ringer
- Amplified Line Monitor Volume
- Modular Cordset Attachment
- Headset for Hands-free Use
- Auto Power Off
- **LCD Display Shows:**
  - On Hook Voltage
  - Number Dialed
  - Off Hook Current
  - Set-up Info
- Stored Numbers
- Continuous Polarity Indication
- Battery Condition
- Call Waiting/Caller ID
- Caller ID Errors

TLB200	Lil' Buttie Pro Test Set	179.95
TLB80	Cordura Pouch for Lil' Buttie Test Sets	19.95
TLB10B	Lil' Buttie Spare Cable with Alligator Clips	19.95
TLB30B	Lil' Buttie Spare Cable with Bed of Nails Clips	26.95
TLB50B	Lil' Buttie TS-22 Replacement Cord with Piercing Pins	21.95
TLB40B	Lil' Buttie Spare Headset	15.95
TLB45B	Lil' Buttie Deluxe Headset	19.95

Inductive Tone Generator and Probe Kit - Useful For Identifying Cable Runs

This kit is especially helpful in identifying cabling that is run inside walls or trying to identify a line from a "birds nest" of tangled cables. The tone generator emits a signal onto the copper cabling and then an inductive probe is used to find the other end. The probe makes a beeping sound when it is placed near the cable that has the signal. Unit has three built in tone types, volume control and auto shut off. Sold in kit form including generator, probe, test leads and a rugged belt pack with D-ring and belt loop. Runs on two 9V batteries which are included. Includes a 1-year manufacturer's warranty.

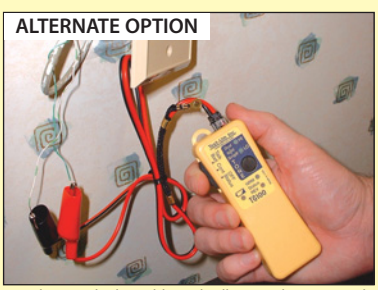
TKP100	Tone Generator and Probe Kit	119.95

Tip TKP100 *the TKP100 Tone Generator and Probe Kit*

STEP 1

Using the supplied RJ11 patch cable, connect one end into the Tone Generator and the other end into the pre-wired jack. Next, push the tone button to send a tone across the wires.

ALTERNATE OPTION



Use the supplied Y cable with alligator clips to attach the Tone Generator to individual conductors.

STEP 2

Then using the Tone Tracer, press and hold the button and slowly scan the punch down block until you hear a distinct loud tone. You have now identified the cables location.

Type F Pocket Toner - Great For Checking Household Coaxial Cabling Runs

This Pocket Toner is an extremely handy instrument for identifying and testing coaxial cables terminated with Type F connectors such as those used for cable TV. Ruggedly built, the toner base unscrews creating a remote unit that emits a tone when plugged into the far end of the cable run. Other features include, a Bi-colored LED, which indicates 50-75 Ohm termination and a power switch, which prevents accidental battery drain. Uses 1 standard AAA battery for extra long life and easy replacement. Features a 1-year warranty.

DXF11	Type F Pocket Toner	34.95

RoHS Compliant In-Line Modular Test Adapter - Allows Circuit Access Without Disrupting Circuit

Use with 2 or 3 pair, RJ11/12 lines. Copper contacts have an angled edge to prevent alligator clips from falling off. Wire color coded for easy ident. Three 2-color LEDs identify activity. Modular jack on the end.

EC-LMTJ	Test Adapter, 3 Pair Modular	9.95

Professional Grade Cable Splicer Knife and Scissor

These tools are a great addition to any cable technicians tool kit. The CS925 is an industrial grade serrated scissor capable of cutting thin wires and cable jacketing. This tool also has wire stripping notched on one blade as well as a scraper and file on the back of the other. The CK6 is a forged steel splicer knife with red cushioned handle. This tool comes in handy whenever a sharp blade is necessary. The CS925KIT offers both tools plus a heavy duty leather holder that will keep the knife and scissor secured to a tool belt.

CS925	Cable Splicer Serrated Scissor	16.50
CK6	Cable Splicer Knife	10.90
CS925KIT	Knife and Scissor with Holder	33.50

Item #	Description	List Price

RoHS Compliant Brady TLS2200™ Premium Thermal Transfer Label Printer

The TLS2200 system offers the lightweight of a hand-held printer (2.75lbs), while providing the superior capabilities of thermal transfer printing. The Brady printer features a two-line liquid crystal display and produces smear proof, ultra clear print quality and faster output than most other printers on the market. Useful for printing barcodes as well as text and numbers with crystal clear accuracy on labels up to 2 inches wide. This means you can now print labels for wire markers, patch panels, circuit boards, cable markers and more, faster and easier than ever before. Includes a 6-month manufacturer's warranty.

TLS2200	Premium Brady Thermal Transfer Printer	795.00
R6210	Replacement Ribbon for TLS2200	23.28
TLS2200-BP	Replacement Battery	75.95

Brady IDXPERT Handheld Labeling System

The IDXPERT is the first handheld cartridge based labeling system that can print die-cut labels, self-laminating labels and sleeves as well as continuous tapes...You name it IDXPERT prints it! Choose from two keyboard layouts, then select from a wide range of label materials engineered just for your application. That includes wire and cable markers, panel, rack and frame ID, facilities labels and specialty labels for labs and workspaces. The IDXPERT can be used with self-lams, sleeves and 90+ label styles including continuous tapes. Additionally, the IDXPERT can print on materials up to 1.5" wide and prints characters up to 1.25". It also provides 82 symbols plus bar codes.

IDXPERT-ABC	Brady IDXPERT Handheld Labeling System (ABC Layout)	399.95
IDXPERT-KEY	Brady IDXPERT Handheld Labeling System (Keyboard Layout)	389.00

Brady IDPAL™ Thermal Printer

Brady IDPAL hand-held labeling tool offers electrical installers an unbeatable combination - superior labels designed for outstanding adherence to round and curved surfaces - at an affordable price. Weighing only 1.2 lbs. fully loaded (cartridge and batteries), it fits comfortably in the hand, features all the standard electrical symbols and is easy to use. The label cartridge is top-loaded. Built-in intelligence senses tape size and automatically formats the label. A choice of performance tested labeling materials, label widths and lengths and fonts ensures a good match with a variety of applications. It's the ideal tool for wire and cable marking, component marking and general identification. Includes a 6-month manufacturer's warranty.

IDPAL	Brady Thermal Printer	99.00

Item #	Description	Labels per Roll	1-9	10-24	25-99	100-249	250-499

Brady Roll, Cartridge and Wraparound Cable Labels

Brady cable labels are made from durable, high quality vinyl and can be used in any cable labeling application. Please refer to the label dimensions sizing chart located on the bottom right hand side of this page.

Cable Labels for TLS2200 are Available in a Variety of Sizes

PTL19427	Cable Labels, 1.0"L x 1.0"W x .375"H	250	29.95	29.35	28.75	28.15	27.55
PTL31427	Cable Labels, 1.0"L x 1.5"W x .50"H	250	34.95	34.25	33.55	32.85	32.15
PTL21427	Cable Labels, 1.0"L x 2.5"W x .75"H	100	24.95	24.45	23.95	23.45	22.95

Note: Many other label types available, call your L-com Sales Representative for free Brady Literature.

Brady IDXPERT Voice/Data Cable Markers

These labels are Ideal for marking data cabling. The B-427 vinyl self-laminating material offers superior abrasion resistance and resistance to dirt, oils, solvents and water. Each label features a clear, non-printed area, which wraps around and over laminates the printed text. The IDXPERT automatically "multiple repeats" your text in the white print area. These labels are UL Recognized and support a temperature range of -94°F to 158°F (-70°C to 70°C).

XSL-102-427	Vinyl Labels, 0.50"L x 1.25"W x 0.375"H	250	24.95	24.45	23.95	23.45	22.95
XSL-103-427	Vinyl Labels, 1.00"L x 1.25"W x 0.50"H	250	39.95	39.15	38.35	37.55	36.75
XSL-115-427	Vinyl Labels, 1.50"L x 1.25"W x 0.50"H	250	38.65	37.88	37.10	36.33	35.56
XSL-29-427	Vinyl Labels, 0.50"L x 1.25"W x 0.50"H	500	44.95	44.05	43.15	42.25	41.35
XSL-30-427	Vinyl Labels, 0.75"L x 1.25"W x 0.50"H	250	33.95	33.27	32.59	31.91	31.23

Note: Many other label types available, call your L-com Sales Representative for free Brady Literature.

Cable Labels for the IDPAL

PAL375439	Label Cartridge, 21'L x .375"W	N.A.	18.00	17.64	17.28	16.92	16.56
PAL500439	Label Cartridge, 21'L x .50"W	N.A.	18.00	17.64	17.28	16.92	16.56
PAL750439	Label Cartridge, 21'L x .75"W	N.A.	21.00	20.58	20.16	19.74	19.32

RoHS Compliant Cable Labels - Wraparound Style, 3 Sizes to Choose From

CL0515	Cable Labels, .50"L x 1.5"W x .50"H	30	7.50	7.35	7.20	7.05	6.90
CL1150	Cable Labels, 1.0"L x 1.5"W x .50"H	30	9.00	8.82	8.64	8.46	8.28
CL1375	Cable Labels, 1.0"L x 3.75"W x 1.0"H	30	11.00	10.78	10.56	10.34	10.12

Note: CL Series labels are not intended for use with Brady printers.

Tip *What size cable label is appropriate for the cable that I am using?*

CROSS SECTION	IF YOU HAVE:	THEN USE:
	8 conductor flat silver satin	PTL19427 or CL0515
	Duplex fiber cord (zipcord)	PTL19427 or CL0515
	RG59 coaxial cable	PTL31427, CL0515 or CL1150
	Cat. 5/5E/6 4 pair twisted pair	PTL31427, XSL Series, CL0515 or CL1150
	Category 3 25 pair	PTL21427, CL0515, CL1150 or CL1375

THERMAL TRANSFER TYPE

TLS2200
CLEARER AND FASTER
IDXPERT-ABC

IDXPERT-KEY

THERMAL TRANSFER TYPE

MORE ECONOMICAL
IDPAL

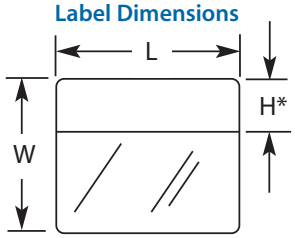
XSL-102-427
Replacement Ribbon for IDXPERT

PAL750439
Replacement Ribbon for IDPAL

CL0515

CL1150
CL1375
Labels wrap around cable for easy identification.

Label Dimensions



*Note: Height refers to printable area